

ACKSON & TYLER

TOOLS AND SUPPLIES

OF ALL KINDS,

For Machinists, Blacksmiths, Model Makers, Etc.

FOOT LATHES, DRILLS, ETC.,

No. 27. German Street.

BALTIMORE.

1880.

PRICE LISTS

Furnished Free on Application of

MACHINE AND SET SCREWS,

Bolts, Nuts and Washers.

LEATHER AND GUM BELTING,

Lace Leather and Belt Findings.

COTTON WASTE AND PACKINGS.

STEAM GAUGES, BRASS GOODS,

Pipe Fittings, Etc.

We intend this CATALOGUE to be our

TOOL BOOK.

We have Separate Lists on other Supplies.

JACKSON & TYLER,

IMPORTERS, MANUFACTURERS AND DEALERS IN

TOOLS AND SUPPLIES

OF ALL KINDS, FOR

Machinists, Planing and Saw Mills, Blacksmiths, Pattern Makers, Model Makers, Cabinet Makers, Piano-Forte Makers, Carvers, Moulders, Carpenters, Amateurs,

&c., &c.

ALSO, IN STOCK A COMPLETE LINE OF

MACHINISTS' AND BLACKSMITHS' SUPPLIES,

ANVILS.
PORTABLE FORGES,
BELLOWS,
VISES,
WRENCHES,
HAMMERS,
BELT HOOKS,
BELT RIVETS,
SPELTER,
CRUCIBLES,
LACE LEATHER,
PATENT LACINGS,
EMERY,
EMERY CLOTH,
EMERY PAPER,

EMERY WHEELS,
QUARTZ,
DRILLS AND R
LAG SCREWS,
SET SCREWS,
CAP SREWS,
BOLTS,
NUTS,
WASHERS,
MELTING LADLES,
ENGLISH GLUE POTS,
AMERICAN GLUE POTS,
STEEL LOTTERS
MELTING LADLES,
ENGLISH GLUE POTS,
AMERICAN GLUE,
STEEL AND IRON WIRE,
CABINET CLAM
CHESTERMAN'S
CHECKS,
MATHEMATICAI

LATHE DOGS,
DRILLS AND REAMERS,
RATCHET DRILLS,
STOCKS AND DIES,
STOCKS AND DIES,
STONERS' HAND SHEARS,
TINNERS' BENCH SHEARS,
BABBIT METAL,
PATTERN LETTERS,
STEEL LETTERS AND FIGURES,
DIFFERENTIAL PULLEY BLOCKS,
MITTE MACHINES,
HAND SCREWS,
CABINET CLAMPS,
CHESTERMAN'S TAPES,
MATHEMATICAL INSTRUMENTS.

AND A FULL ASSORTMENT OF ENGLISH AND AMERICAN HARDWARE, GUM BELTING, HOSE AND PACKING, LEATHER BELTING, &c.

SEND FOR LISTS

On Set and Machine Screws, Bolts, Nuts and Washers, Leather Belting and Belt Findings,

BALTIMORE:

PRINTED BY JOHN B. PIET, 174 WEST BALTIMORE STREET.

1880.

MOTICE.

WE present the following third edition of our Catalogue, which is fully illustrated, thereby enabling all requiring tools, to select at once, those articles best suited to their wants. We have added many new tools, and try and have all new tools as they come out.

SPECIAL NOTICE.

Parties out of town, ordering goods, can send the money in registered letters or Post-Office money orders. Goods will be sent "C. O. D.," provided a remittance of one-third accompanies the order, and the expense of collection charged by the Express Company must be paid by the purchaser in all cases.

NEW POSTAL LAW.

Small Tools or other articles can be sent by mail to any part of the United States, for one cent per ounce, provided the package does not weigh over four pounds. This is very much cheaper than express.

Articles will not be sold at the dozen price, unless at least half dozen of one kind are bought at a time.

PRICES SUBJECT TO MARKET CHANGES WITHOUT NOTICE.

In ordering from Catalogue, always give number of page.

WE ARE PREPARED TO

Furnish any article in the Hardware Line from any Catalogue Published, At Prices Quoted.

Particular Attention given to Orders for Export.

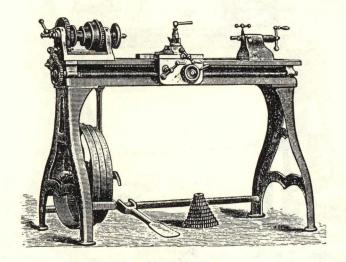
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FOOT LATHES.



SCREW CUTTING FOOT LATHE.

THIS CUT REPRESENTS NEW PATTERN PRENTICE LATHE.

Designed to meet the demand for a low priced lathe for business purposes.

All the working parts are well and thoroughly made and of the best material.

By dispensing with all outside finish not required by the working of the lathe, we are able to produce an accurate, and first-class working machine, at a less price than has heretofore been made.

It has Hollow Steel Spindle in the head and all the conveniences of a first-class Engine Lathe, and the foot motion is of the most approved design.

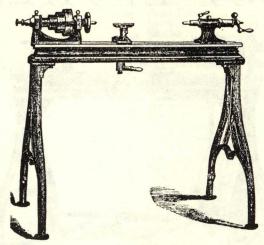
Swings 11 inches, Turns 36 inches between centres, and has 5 foot bed.

WEIGHT, 600 Pounds.

PRICE, \$150.

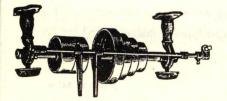
Counter shaft for power furnished with this Lathe instead of foot motion, at same price.

PRENTICE HAND LATHES.



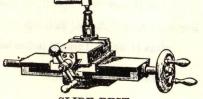
Length	of Way.	S	wing.		betw'n ntres	We	ight.	Price.
31 1	eet.	9	inches.	24 i	nches.	200	lbs.	\$ 65
3	46	11	"	14	"	320	44	87
-	"	11	"	26	"	340	46	90
5	66	11	"	38	"	380	46	93
-1	"	14	"	22	"	500	46	114
5	"	14	66	34	"	570	44	117
6	"	14	"	46	"	640	46	120
8	"	14	46	68	"	710	"	128
4	"	16	"	22	46	560	44	130
5	"	16	66	34	"	630	"	134
6	66	16	"	46	46	700	66	138
8	"	16	"	68	"	770	"	145

These Lathes have Hollow Steel Spindle in head. Back Gears for 11 and 14 inch, Swing lathes, \$25 extra. Back Gears for 16 inch swing, \$30 extra. These Lathes furnished with foot power at an advance of \$20 each.



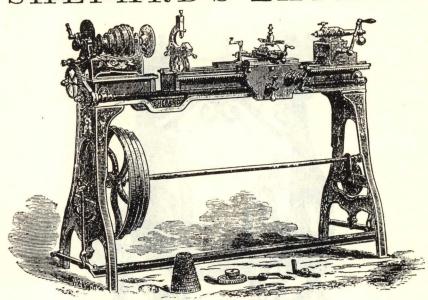
COUNTER SHAFT

PRICE, \$8.00



For Lathes of 9 and 10 inch swing, Length, 9 inches. PRICE, \$32.00

SHEPARD'S LATHES.



The Screw Cutting Lathe is substantially built, yet very light and easy running, and meets with great favor among Machinists, Gunsmiths, Bell Hangers, Dentists, Jewelers, Clockmakers, Pattern Makers, Amateurs, etc. It will do the lightest work as well as the heaviest. One of the peculiarities of this Lathe consists in a Gap down from the face plate, enabling wheels or cranks to be bored or turned 20 inches diameter and 4 inches face. This Gap is always open, the slide rest being so heavy as not to need any extra pieces to be bolted in, causing loss of time and annoyance.

Another excellent feature in it is the ability to bore any taper hole or turn dishing or rounding surfaces. The Slide Rest has three slots in base, and can be changed to either slot in an instant. For chasing screws, the pointed tool can be raised or lowered without unfastening tool; this is a new arrangement, and may be deemed a necessity for a Screw

Cutting Lathe. This Lathe swings 12 inches over shears or 20 inches by 4 inches wide down from face plate. It will take in lengths of 36 inches between centres. The Bed is five feet

long, thoroughly braced and got up of a neat design.

The Fly Wheel weighs 80 pounds with four speeds, and as the Lathe is back-geared

gives 8 speeds, with same motion of foot.

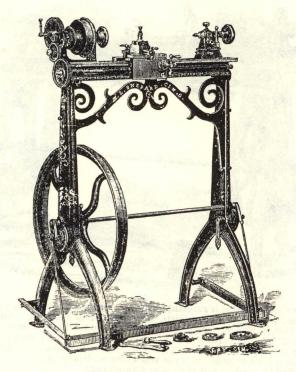
I have adopted as a standard for my Lead screw ten threads to the inch, as tens can be figured out more easily, and at a glance at my index will almost instantly be fixed in the

mind. Many use a coarse thread, say 5 to the inch, thus reducing their bearing surface onehalf of mine, and consequently reducing its durability just one half as well. This is a very important feature in Screw Cutting Lathes, and well worth attention on the part of those desiring a tool that will keep true he longest time.

PRICE LIST.

Screw Cutting, Back Geared, Gap Foot Lathe, Swinging 12 by 36 inches	\$150 00
The same Lathe with Independent Feed, no Screw Cutting Accounts for iron, one Sp. Without Back Gear, Feed or Screw Attachment; but with 2 centres for iron, one Sp. Control one Cun Centre, one Screw Centre, with two rests and support	100 00

SHEPARD'S \$50.00 ENGINE LATHE.



Swings 7 x 20 Inches

The Lathe takes in lengths of 20 inches between centers and swings 7 inches over shears. It is furnished with face-plate, 2 pointed centers, and the gears to cut 6, 8, 10, 12, 16, 20, 24, 32 and 40 threads.

All the treadle is of wrought-iron, is thoroughly braced, has four V's on bed, center hole bored out true, spindle made of 1½ in. solid steel. The back gear is thrown in and out by a cam; the tail stock sets over for tapers and is fastened down by a cam.

The slide rest is detachable for hand work, the same as my large Lathe, only or different construction, and can be thrown into feed instantly for turning or screw cutting; all threads for screws are bastard—that is, half square half V. This part of the Lathe will be found very convenient. The rest is raised by screw on back of Lathe for chasing screws.

This is the most complete Lathe for the price in the market.

THE EAGLE FOOT LATHE.

No 1.

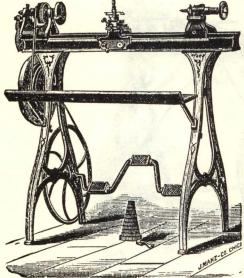


Swings six inches, and turns twenty-two inches long. This Lathe is perfectly adapted for most kinds of turning, in wood or metals, also drilling, boring, polishing, sawing, etc. The legs, bed, balance-wheel, cone-pulley, head and tail stocks, and treadle of this Lathe are made of cast-iron; the spindles are cast-steel. The spindle runs in boxes which can be tightened up as they wear. The balance-wheel weighing 42 pounds is turned true. It has three sizes for change of speed, and, by varying the mo'i n of the foot, will give a sufficient compass of speed for the size of the Lathe. The hand-rest, slide-rest, and tail-stock are held in place by cam fastenings. The running parts are truly balanced and perfectly noiseless. The Lathe is very strong, and free from any vibration, and combines strength and durability, without being extra heavy or clumsy. This Lathe is painted and varnished in plain but good style, and has a black walnut bracket shelf attached to the bed. The pieces which accompany it without extra expense are two pointed centers, one spur center, face-plate turned and polished, three Trests, one nine inches, one six inches, and one three inches long. The center in the tail-stock is loosened when the spindle is drawn back far enough for the traversing screw to touch it. The ways of the bed are planed true, and are thirty-six inches long. The circular and gig saws which fit this Lathe are simple and convenient. They will fit the Lathe whenever you wish to order them. The treadle is provided with a joint to avoid injury to the feet, should they get under it while in motion.

Price, Painted in Plain Lead Color	\$50	00	
Same, Japanned and Ornamented	55	00	
Same, with 4 feet 4 inch bed, extra	5	00	
Price of Slide-rests suitable for this Lath	15	00	

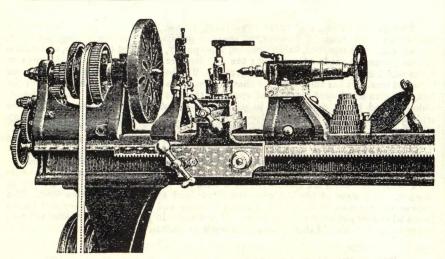
BARNES' LATHE No. 5,

With Pa'ent Velocipede Foot Motion.



This Lathe swings 9 inches on the face plate, 5 inches over the tool carriage, and will take work 34 inches long between centres. It is a strong and powerful Engine Lathe, having all the necessary appliances for rapid and accurate execution of heavy or light work.

It is thoroughly and substantially built of iron, steel and brass, each used where it will best serve. Every part is in true proportion, and all arranged for convenience, strength and durability.



SECTIONAL VIEW.—It is thoroughly and substantially built of iron, steel and brass, each used where it will best serve. Every part is in true proportion, and all arranged for convenience, strength and durability.

BARNES' NO. 5 LATHE.-Continued.

The tail stock can be instantly set at any desired point, or taken altogether from the Lathe bed, and without wrench or removing bolts. It can also be set over for turning tapers. The spindles of both head and tail stocks are of cast steel, with positively true taper holes for the reception of the centers. The center of the tail stock is self-discharging.

The Tool Carriage is a model of convenience and accuracy, and is *gibbed* to the bed. The tool can be set to the work at any position or angle desired, also to bore a taper hole or turn a ball, features not in ordinary movements of Tool Carriages.

The Carriage is fed positively either to the right or left, as desired. The feed can be started, stopped or reversed instantly, at the will of the operator. All parts are securely protected from chips and dirt, thus ensuring long wear and durability to the most costly and vital parts of the Lathe.

The Gearing furnished can be combined to make some five hundred different leads of thread. As a screw-cutting Lathe, it is simply perfect.

There are no cast Gears used in the Gearing of this Lathe. All the Gear wheels are cut from solid metal, in the best machinery known for gear cutting, and are as positively true and noiseless as it is possible for metal gear.

The Patent Velocipede Foot Motion used on this Lathe has proved to be of great advantage over other styles of foot power both for ease of operation and for doing effective work.

This Lathe weighs 250 fbs., boxed for shipping 330 fbs.; and except the balance-wheel of 30 fbs., the weight is all in its working parts, which is a great consideration when compared with the lathes arranged with the old faulty foot-power motions, the balance-wheels of which often weigh 200 fbs., or more than all the balance of the lathe. This great weight is entirely useless, except to overcome faults in a defective foot power.

GREAT RANGE OF SPEED.

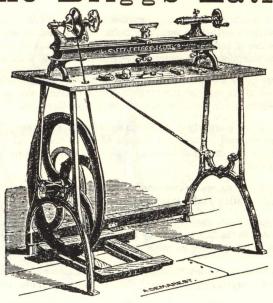
This Lathe, with its back gearing and differential pulleys, has a greater range of speeds than has ever before been offered in a Foot Power Lathe for the price. The seat hinges at one end, allowing the operator to pass between it and the lathe to be seated. All necessary wrenches and belting with face plate and centers are furnished at the price named.

Price No. 5 Lathe (Foot Power)	100	00
Price No. 5 Lathe (Counter Shaft, no Foot Power)	100	00
Price No. 5 Lethe (both Foot Power and Counter Shaft)	115	00

The No. 5 Lathe can be made longer bed, that will admit of 40 inches between centers, at an extra cost of \$12.00.

Lathe Tools for turning on No. 5 Lathe, 30 cents each. Every No. 5 Lathe has hollow spindle, to admit § inch.

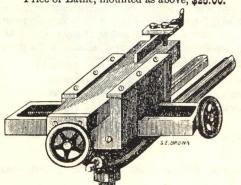
The riggs Lathe.



A LATHE THAT COMBINES SUPERIOR EXCELLENCE IN QUALITY AND FINISH, WITH BEAUTY, STRENGTH AND COMPLETENESS.

This Lathe will turn a piece of wood or metal 12 inches long and 6 inches in diameter. It can be used with equal advantage for drilling, polishing, sawing, etc. The length of bed is 24 inches; the spindle is made of steel, has a conical bearing, and can be tightened as it wears; the bed, head, tail stocks and cone pulley are of cast iron, and the centers of steel. The following pieces are furnished with the Lathe: Two T rests, one face plate, two plain centers, one spur center for wood, one plain drill chuck, one drill pad, and one centre left blank to turn down as a fitting for a universal chuck. The bench weighs 81 pounds, is made of iron, with a black walnut top, and has a driving wheel measuring 22 inches in diameter, with three grooves for changes of speed.

Price of Lathe, mounted as above, \$25.00. Without Bench, \$15 00.

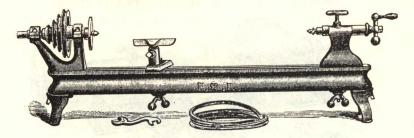


SLIDE REST.

FOR SMALL LATHES.

Price. \$8.00.

THE LELL LATEE.

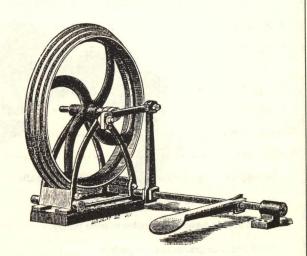


SWINGS 6x20.

A NICE LATHE FOR JEWELERS OR AMATEURS.

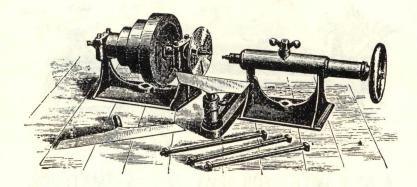
PRICE, \$10.00.

New Foot Motion for Small Lathes.



PRICE \$5.00.

LATHES.



With Cast Steel Arbor, and Composition Boxes of best quality; are furnished with Rests,

Rest Socket and Bolts, suitable for securing them to a frame.

No.	00,	with	Cone	Pulleys,	weight	22	lbs	, 7	inch	Swing,	each\$13.00	
"	0,	"			"	37	"	9	66	"	" 17.50	1
"	1,	"			44	60	"	12	"	66	" 23.00	
"	11	, "			"	97	44	13	"	"	" 30.00	
"	2,	"		•	"	152	"	15	"	46	" 40.00	
46	00,	with	out '		"	19	"	7	"	"	" 11.00	
"	0,	"	4	•	"	35	44	9	"	"	" 15.00	
"	1,	"	6	4	"	57	"	12	"	"	" 20,00	
**	11/2	, "	6	•	"	86	"	13	"	"	" 24.75	
"	2,	"	•	•	"	140	"	15	"	"	" 38.00	
Woo	od C	entre.	• • • • •								" 1.25	
Rou	nd (Centre	·					,			" 1.25	

See opposite page for Foot-motion and Counter shafts.

Nos. 00 and 0 have two grades to cone pulley.

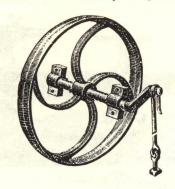
Nos. 1 and 11 have three grades to cone pulley.

No. 2 has four grades to cone pulleys.

LATHE WHEELS.

WITH SHAFT, CRANK, AND CONNECTIONS,

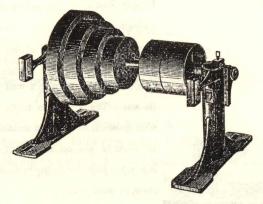
Comprising all the Iron Work necessary for operating by foot power.



WHEEL, SHAFT, CRANK, BOXES, &c.

No	. 0.	Wheel 20x2; inches, weight 33 lbs., for No. 00 and 0 Lathes, each\$10 00
66	1.	Wheel 22x3 inches, weight 45 lbs., for No. 0 and 1 Lathes, each 13 00
		Wheel 26x3 inches, weight 85 lbs., for No. 1 and 1½ Lathes, each 16 00
46	2.	Wheel 30x31 inches, weight 112 lbs., for No. 11 and 2 Lathes 18 00
"	11.	Wheel 24x3 inches, 3 grades, weight 110 lbs, for No. 1 Lathe, each 18 00

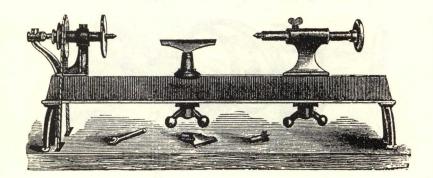
OVERHEAD PULLEYS, HANGERS AND SHAFT.

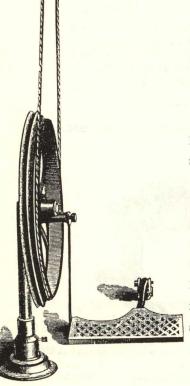


No	. 1,	for	No.	1	Lathe	es\$12	00
"	11,	"	"	11	"		50
66	2,	"	"	2	"		75

EXCELSIOR LATHES.

FOR AMATEURS AND SMALL WORKERS.





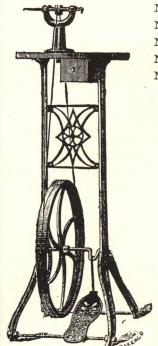
LATHE, - - - - 89 00

FOOT POWER, - - - 86 00

COUNTER SHAFT, - - 86 00

It is our aim to furnish a well made Lathe for its size. The ways are made of Iron, and is well finished, so that it is suitable for any work likely to be put on a Lathe of this size. This is a much superior Lathe to those made on this style, of wood ways..

POLISHING LATHES.



No. 1.	Plain	or Grooved	Wheel	and No.	1	Head.	\$14	00
No. 2.	"	"	"	• 6	2	"	"	
No. 3.	"	"	"	"	3	"	\$12	00
No. 4.	"	"	"	**	4	"	"	
No. 5.	44	"	"	**	5	"	\$15	50

Polishing Heads.



Cut of Nos. 1 and 3.

All our heads are furnished with STEEL SPINDLES, which stand six inches above top of table.

Nos. 1 and 2

Are a first class article in every respect. Boxes are fitted with caps; spindles are shouldered down for bearings.

No. 1—Both ends of spindles tapered for Buff Wheels.

No. 2—Spindles fitted for Buff and Emery Wheels, as well as Chuck.

Price.

Nos. 3 and 4.

These are well made heads. Same style as Nos. 1 and 2, but with SOLID BOXES. No. 3—Both ends of spindle tapered for Buff.
No. 4—Spindles fitted for Buff and Emery Wheels, as well as Chuck.

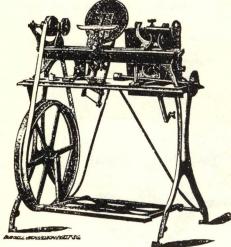
Price.

No. 5.

Fitted especially for Dentists' use, having taper spindle at one end and hollow at other end for burrs. One wheel chuck included.

Price, 87.50

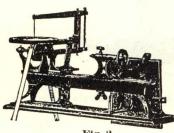
Babbitt's Combination Lathe for Amateurs and Artisans

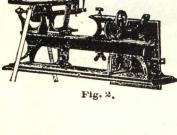


For Turning, Scroll and Circular Sawing, Boring, Drilling, Grooving, Polishing, &c., for the use of Amateurs and Artists.

Fig. 1 represents this Lathe with the Scroll and Circular Saw attachments. Price complete, \$55. It will turn 18 inches long and 8 inches diameter. The Cut shows the Sawing Attachments thrown back, and the Lathe in position for turning.







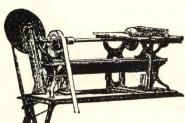


Fig. 3.

Fig. 2 shows the Lathe with the Scroll Saw in position for use, and the Circular Saw thrown back. The saw is fastened to its place on the Lathe by the same bolt that holds the rest for turning; motion is given to it by an eccentric which screws on the Lathe Arbor and runs in a groove in the lower arm of saw.

This Attachment is capable of Sawing, readily, hard wood 11 inch thick, and will swing 15 inches between the standard and saw blade.

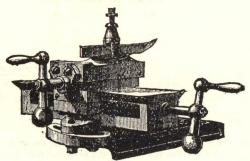
Price of Lathe, with this Attachment only, \$45. This Attachment may be easily fitted to any make of Lathe as well as this. Price of Attachment, \$10.

Fig. 3 shows the Circular Saw in position for use, and the Scroll Saw thrown back. It has an Iron Saw Table, perfectly adjustable, planed true on top, with grooves planed at right angles, so that tho guide and slide may be moved back and forth readily, and be always true with the saw. The slide may be set at any angle, and perfect work pro-duced. Through the middle of the table is fitted a wooden strip which may be removed to admit a groover or polishing wheel. We furnish with this Attachment two 4 inch saws, one for cutting off and one for splitting.

Price of Lathe, with this Attachment only, \$48. This Attachment may be used on any other Lathe. Price \$12.

Plain Lathe, without Attachment, \$38.

SLIDE RESTS.

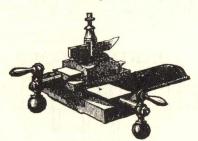


Adapted to Lathe No. 4.

THE SLIDE-REST.

These tools are provided with two slides placed at right angles with each other, carrying a tool which may be drawn back and forth or sideways by means of screws, allowing any position for the turning tool. It is worked by hand, and will turn straight or tapering, and face or square up surfaces. This has 7 inch traverse.

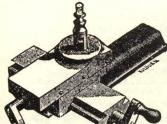
PRICE \$25 00.



SLIDE REST.

Adapted to Lathes Nos. 1, 2,

PRICE \$15.00.



SLIDE REST.

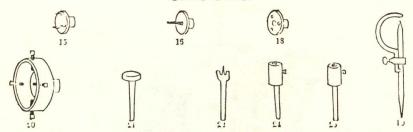
Suitable for Babbitt's Lathe, or it can be used on any Lathe that will swing 6 or 7 inches.

PRICE. \$14 00.

SETS OF 8 SLIDE REST TOOLS, for turning metal, consisting of 1 Diamond Point, right hand; 1 Diamond Point, left hand; 1 Right Side Tool; 1 Left Side Tool; 1 Parting Tool; 1 Round Point; 1 Point Tool; 1 Inside Tool. Price, per set, \$3 00. Single Tools 40 cents each.

Slide Rest for Lathe, swinging from 8 to 9 in., \$25.00
" 10 to 12 in., 30.00

CHUCKS.



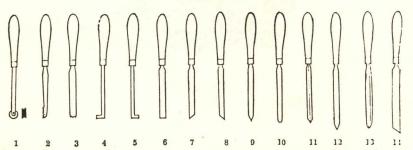
The following Chucks will fit Babbitt's Lathe described on page 21, but would not be likely to fit any other make of Lathe. We can make them to order to fit any Lathe, but must have the Arbor of Lathe to fit them by. The price, if made to order, is about \$1\$ higher

- 15. THREE PRONG CHUCK, \$3 each.
- 16. SCREW CHUCK, \$2 each.
- 18. SMALL FACE PLATES, for holding Wooden Chucks, Polishing Wheels, &c., 3) cents each.
- 19. TURNER'S SIZER, \$2.
- 20. SHELL CHUCK, with 4 Set Screws, \$3.
- 21. DRILL REST, \$1.50.
- 22. SPUR CHUCK, \$1.50.
- 24. FLAIN DRILL CHUCK, with Set Screw, \$1.75.

FLAT DRILLS, to fit above, from 1-16 to % inch, 25 cents each.

25. DRILL CHUCK, with Square Hole for Bits, \$1.50.

TURNING TOOLS.



- 1. MILLING TOOLS, with one wheel, 87 cts.; extra wheels, 30 to 50 cts. each
- 2, 3. CHASERS, for cutting Screws from 10 to 48 threads to the inch, 80 cents per pair.
- 4, 5. BENT INSIDE TOOLS, for Brass, Ivory, Hard-wood, &c., 25 cents each.
- 6. FLAT TOOLS, for Brass, Ivory, Hard-wood, &c , %, %, %, inch, 25 cents.
- 7, 8. SIDE TOOLS, Right and Left, for Brass, Ivory, Hard-wood, &c., 1/2, inch, 25 cents each.
 - 9. POINT TOOLS, for Brass, Ivory, Hard-wood, &c., %, %, % inch, 25 cents each.
 - 10. ROUND POINT TOOLS, for Brass, Ivory, Hard-wood, &c., %, %, % inch, 25 cts. each.
 - 11. SQUARE GRAVERS, for Metal, %, 15c.; 5-32, 15c.; 3-16, 17c.; 7-32, 20c.; %, 25c.
 - 12. CUTTING-OFF TOOL, for Wood, 40 cents each.
- 13. TURNING GOUGES, for Wood, % % % % % 1 in. 1% 1% 1% 2 in 80 30 .30 .33 .37 .40 .45 .60 .75 1.00 1.20 1.40 14. TURNING CHISELS, for Wood, .25 .25 .25 .30 .33 .35 .42 .55 .70 .85 1.00
- Handling any of the above tools will cost 12 cents each.

SETS OF TURNING TOOLS,

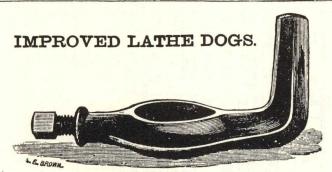
SUITABLE FOR ANY LATHE.

No. 1 consists of 2 Turning Gouges, % and % inch; 2 Turning Chisels, % and % inch; 1 Cutting-off Tool; 1 Inside Tool; 1 Square Graver; 1 Oller; 1 pair of Callipers. The Tools are a.l Hundled. Price \$3.25.

No. 2 consists of 3 Turning Gouges, %, % and % inch; 4 Turning Chisels, %, %, % and 1 inch; 1 Cutting-off Tool; 1 Square Graver; 1 Round Point; 1 Point Tool; 1 Inside Tool; 1 Square Point; 1 Narrow Square Point; 1 Oiler; 1 pair of Callipers. The Tools are all Handled. Price \$6.50.

No. 3, 12 assorted Tools suitable for the Eureka Lathe, or any small Lathe, \$4.50 per set, all Handled.

Set of 13 TURNING Tools for Brass, Ivory or Hard-wood, consisting of 1 Square Graver; 3 Round-point Tools; 2 Square-point Tools; 2 Side Tools; 1 Inside Tool; 2 Point Tools; 1 Cutting-off Tool. Price, \$2.50. The same set, Handled, \$3.75.



The above Dogs we believe to be the best in the market. They are made as light as possible; the corner is rounded so as not to strike against the Lathe-carriage; and the screws are made of Steel and hardened.

% in. % in. 1 in. 1% in. 1% in. 2 in. 2% in. 3 in. 40 cts. 50 cts. 60 cts. 75 cts. 90 cts. \$1.00 1.10 1.35 1.50 each.

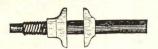
LATHE DOGS, the same pattern as above, but lighter and smaller, for Small Lathes, with 3 or 4 inch Face Plates.

% in., 35 cts. % in., 35 cts. % in., 35 cts. 1 in., 35 cts.

% in., 35 cts. ½ in., 35 cts. ½ in., 35 cts. 1 in., 35 cts.
ADJUSTABLE LATHE DOGS, commonly called Bitch Pogs, made of Cast Steel, with Steel Screws, and finished all over; a very superior Tool. Price, to take 2 in., \$1.50; 2½ in., \$1.75.

KNURLS or MILLING WHEELS, various patterns, 30 to 50 cents each. UNIVERSAL HANDLES, for Milling Wheels, 68 cents each.

Circular Saws and Arbors.



CIRCULAR SAWS, for Sawing Metal,-

Diameter 3 in.	2 in.	2 in.
Hole	% in.	%in.
Price \$1.25	\$0.75	\$0.75
211001111111111111111111111111111111111		•

CIRCULAR SAWS, for Wood, 3 in. \$1.00, 4 in. 1.00, 5 in. 1.25.

STEEL ARBORS, for holding Saws, Emery Wheels, Grindstones, &c.

Diameter	% in.	1/2 in.	% in. \$2.50	% in. \$3.00

MORSE PATENT

STRAIGHT LIP INCREASE TWIST DRILL.

ease Twis	& Amer	. Star	-				hank		Str	aight Sh	ank.	
No. of Sockets for Standard Taper	Diameter of Drills.	Length in Inches	PRICE KACH.	No. of Sockets for Morse Taper.	Diameter of Drills,	Length in Inches.	PRICE PER DOZEN.	PRICE EACH.	Numbers by Gauge.	Length in Inches.	PRIOR PER DOZEN.	PRICE EACH.
No. 1, \$1.30.	1-4 9-82 5-16 11-32 3-8 13-32 7-16 15-32	6% 6% 6% 6% 7	60 65 70 75 80 85 90 95 1 00	No. 1, \$1.20	1-16 5-64 8-32 7-64 1- 8 9-64 5-32	2% 2% 2% 2% 8% 8% 8% 8% 8% 8% 8% 8%	1 00 1 10 1 20 1 80 1 45 1 60 1 80	09 10 11 12 13 15 16	1 to 5 6 · 10 11 · 15 16 · 20 21 · 25 26 · 30 81 · 85 36 · 40 41 · 45 46 · 50 51 · 60	4 3 11-16 3 1-2 3 1-4 3 1-16 2 13-16 2 5-8	2 35 2 25 2 10 1 95 1 75 1 55 1 40	22 21 20 19 17 15 14
No. 2, 81.55.	10-32 1-2 17-32 9-16 19-32 5-8 21-32	7% 8% 8% 8% 9	1 10 1 20 1 30 1 40	1.20.	11-64 8-16 18-64 7-32 15-64 1-4 17-64	3% 3% 3% 4	2 00 2 20 2 40 2 65 2 90 8 15	12 13 15 16 18 20 21 23 26 28 30	36 " 40 41 " 45 46 " 50 51 " 60 61 " 70	2 5-8 2 7-16 2 1-4 2 1-16 1 3-4 1 1-2	1 25 1 10 95 95 90	12 10 09 09 08
No. 3,	11-16 23-82 · 3-4 25-32	9% 9% 9% 10 10% 10% 10%	1 50 1 60 1 70 1 85 2 00 2 15 2 30 2 45 2 60 2 75 2 90 3 00		9-89 19-64 5-16 21-64 11-89 23-64 3-8 25-64 13-32	4% 4% 4% 4% 4% 5% 5%	1 100 1 100 1 130 1 145 1 160 1 180 2 240 2 240 2 25 2 3 90 3 15 3 3 65 5 40 6 5 6 6 6 6 6 6 70 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	82 85 87 40 42 45 48 50 53	Diam. of Drills.	Price Per Doz.	Eac	ce h.
No. 4 Socket. \$2.50.	1 1-32 1 1-16 1 3-32 1 1-8 1 5-32	11% 11% 11% 11%	3 20 3 40 3 60 3 80 4 00 4 20 4 40	No. 3, \$2.50.	27-64 7-16 29-64 19-32 31-64 1-2 Th prise	5% 5% 5% 6	7 20 7 50 7 75 8 00 ve co	68 65 67 70 m-	1-8 5-33 8-16 7-32 1-4 9-32 5-16 11-32 8-9	2 10 2 60 3 10 3 60 4 10 4 70 5 40 6 30 7 20	24 29 33 38 43 48 54	66 66 66 66 66 66 66
	1 3-16 1 7-33 1 1-4 1 9-32 1 5-16 1 11-32 1 3-8 1 13-32 1 7-16	14% 14% 14% 14%	4 50 4 65 4 80 5 00 5 20 5 40 5 60 5 80		bers'	set. r ver , a nly d a	Mach y exi gau mark c c o i	in- act ge	13-82 7-16 15-32 1-2 17-32	8 00 8 80 9 60 10 30 11 00	68 75 82	
	1 15-82 1 1-9 1 17-32 1 9-16 1 19-82 1 5-8 1 21-32	15 % 15 % 15 % 15 %	6 90 6 80 6 90 7 20 7 50		Leng	lls o th w Str	Tapith h	alf h t		per set, , % to % \$2 60.		
	1 11-16 1 23-32		7 80 8 10 8 40 8 60 8 80 9 00		Taper *Th	Straig Shan e Star n Tape	k Pric	han es. Tap	k Drills, er corres	illing ord ich taper Taper L ponds wit	engths, h the M	at Ian-
	1 8-4 1 25-32 1 13-16 1 27-32 1 7-8 1 29-32 1 15-16 1 31-32	16 % 16 % 16 %	9 20 9 35 9 50 9 65 9 80		Shank The Incre	Pater ase Tre state	detor	indi rilla ther	ng Line is only. It they wo	ith Straig it anysock is applied arties or uld have	et desi	rea.

The above we make by 64ths if ordered. All orders for less than half dozen of a size at single price.

PRICES OF DRILLS PER SET.

No. 1. Set of Taper Shank Drills, 2 to 1 in., varying by 16ths	\$ 20	00
No. 2. Set of Taper Shank Drills, & to 11 in., varying by 16ths	34	50
No. 3. Set of Taper Shank Drills, # to # in., by 32ds, # to 11 in., by 16ths	42	00
No. 4. Set of Taper Shank Drills, \$ to \$ in., by 32ds, \$ to 2 in., by 16ths	131	. 00
No. 5. Set Drills, Straight Shanks, 1-16 to 1 in., by 64ths, mounted		00
No. 6. Set Drills, Straight Shanks, 1-16 to \(\frac{1}{2}\) in., by 32ds, mounted	5	40
No. 7. Set Drills, from 60 to § in., mounted		90
No. 8. Set Drills, Steel Wire Gauge, from No. 1 to 60, mounted	8	10
No. 9. Half Set Drills, alternate Nos. from 1 to 60, mounted	4	30
No. 10. Jeweler's Set of 36 Drills, No. 30 (1 in.) to No. 65, Steel Wire Gau,	ge,	
mounted in a Mahogany case, with cap		25
No. 11. Set of Taper Shank Drills, \(\frac{3}{8} \) to 2 in., by 32ds	240	00
No. 12. Set Machine Bits, 4 in. to 4 in., mounted, varying by 32ds	7	00
No. 13. Set Bit Stock Drills, 1-16 to \(\frac{1}{2}\), by 32ds, \(\frac{1}{2}\) to \(\frac{3}{8}\), by 16ths, boxed	2	8 60

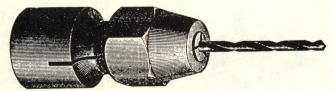
BEACH PATENT DRILL CHUCK.



PRICES.

No. 0, holding from 0 to 1 inch diameter, (for jewelers)	8	00	
No. 1, holding from 0 to 1 inch diameter	8	00	
No. 1, holding from 0 to 2 inch diameter.	8	50	
No. 2, Stetson's Improved, holding from 0 to \$ inch diameter	10	00	
No. 3, holding from 1-16 to \(\frac{1}{2}\) inch diameter	10	00	
No. 4. holding from 3-16 to # inch diameter	11	00	

CENTER DRILL CHUCK.



This Chuck is made of steel, with much care, has hardened jaws, and will prove a convenient tool.

Price each, Holding Drill, one size only,	(sizes 1-16 to 5-16 in. diameter	\$2 50
Center Drills, average length 4 inches,	20 cents each. Per dozen	2 25

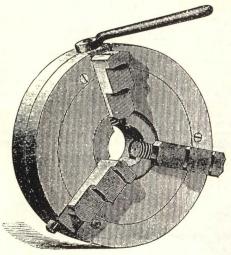
Center Arbors for Beach Drill Chucks.

For Arbor for the Beach	Drill Chuck, No. 1	\$1 00
For Arbor for the Beach	Drill Chuck, No. 2	1 00
For Arbor for the Beach	Drill Chuck. Nos. 3 and 4	1 20

The Arbor has one end left blank to be fitted to the Lathe Spindle.

NEW COMBINATION LATHE CHUCK.

MADE BY PRATT & WHITNEY.

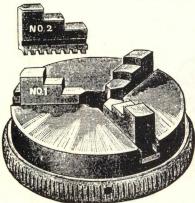


The advantages claimed in this chuck are as follows: It is very strong and durable in all its parts; is easily operated; holds work firmly for an operation; can be very readily fitted to any lathe or machine; the hole through the center is larger than the average in other chucks, which is very desirable; the jaws can be reversed without removing any other parts of the chuck; it can be used as an independent jaw chuck, a universal chuck, or an eccentric chuck; all the working parts of the chuck are entirely protected from dirt and chips, and can be removed for oiling and cleaning without removing the body of the chuck from the face-plate or spindle of the lathe, a very desirable feature in large chucks.

P	R	I	C	B	S		
---	---	---	---	---	---	--	--

			3 J	AWS.		JAWS.
6	inc	h	 \$ 2	26 00		\$ 32 00
8	* **		 8	35 00		 42 00
12	66		 4	14 00	.	 56 00
15			 	52 00		 64 00
18						75 00
21	46		 8	80 00		 96 00
24	66					

CHAMPION CHUCK.



This is a chuck in new design, specially for Foot and Light Power Lathes, and operates by hand or lever.

It is very light, the shell being made of malleable iron, strong, tough and durable.

Jaws of steel, with steps in the usual form, either No. 1 or No. 2, or both if desired.

Back piece of cast iron, screwed to hub of front plate, and either reamed with taper hole, or fitted for face plate, with screws to fasten.

Workmanship first-class in every particular, and, taken as a whole, is the best chuck for the price in the market. Try it.

PRICE LIST.

	inch\$4	
2	inch	50
3	inch	00
	xtra sets Jaws	

THE CENTENNIAL DRILL CHUCK.



This Cuck is a new design, and is made of the best material, its working parts being entirely of wrought iron and steel. It holds drills from \(\frac{1}{4}\) inch to 0, is two inches in diameter, and has a taper hole to attach to any lathe or drill press.

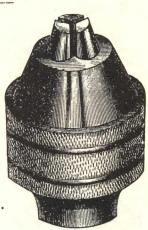
Price, - - - 84.25

ALMOND DRILL CHUCK.

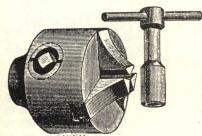
The size of this Chuck, which takes a 5-16 drill, is in length, 2 inches, in diameter, 1½ inches. The jaws, in closing, 5-16 move one-half inch endwise, and it requires eight turns of the nut to completely close them.

It will thus be seen that the purchase of the jaws on the work must be very great.

Price, - - \$5.00.



D. E. WHITON'S PATENT DRILL CHUCK.



Diameter, 2 in.; whole length, 24 inches. Is first-class, both in material and workmanship, and for strength, capacity and convenience has no equal in the market. It holds drills of all sizes to \(\frac{1}{2}\) inch, and will hold work for Chucking, etc., to 1 inch diameter. With horn on outer end of Jaws, will hold up to 1 inch diameter.

Price, - - - \$6.00.

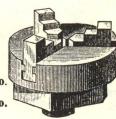


IMPROVED DRILL CHUCK

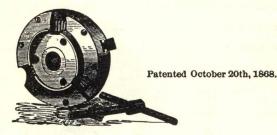
WITH SPANNER WRENCH.

Price, with either style Jaw, \$1.00.

Price, with both style Jaws, \$5.00.



IMPROVED GEARED CHUCK.





The improvements consist in making the pinion and wrench in one piece, and having three openings for the insertion of the wrench. This Chuck is made of malleable wrought iron and steel. It is light, strong, and very neat in appearance, and is just the thing for work that requires changing often, as there is always a place ready to operate the Chuck when the lathe stops.

PRICE LIST.

3 i	nch,	including	screv	78	10 00	1 71	inch, i	ncluding	screw	vs	\$ 19	00
41	46	46	66		13 00	9	44	66	44		22	00
6	66	"	66		16 50	12	"	46	46		29	00



PRICE LIST

OF THE

MULHORTON LATHE CHUCK.

THREE JAWS.

6	inch	diameter	and less	\$26	00	24	inch	diameter					\$100	00
9	66	44		34	00	30	46	46					170	00
12	44	44		44	00	36	44	46					230	00
15	44							44	for	car	wheels	3	250	00
18	44	**		62	00	30	46	"	44	46			185	00
21	44	66		80	00									

FOUR JAWS.

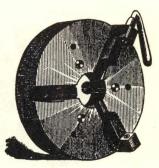
6	inch	c	dia	mete	er	. \$32	00	18	inch	diamete	r	75	00
9	"			46		. 42	00	21	"	"		95	00
12	"			66		. 56	00	24	"	"		120	00
15	60			64		. 64	00	30	44	44		200	00

CUSHMAN'S CHUCKS.

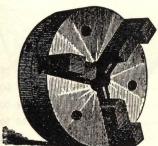
No. 1, Improved Lever Scroll Chuck.

With Set Screws in the Horn of the Jaw for trueing up work, and holding it extra tight.

9	inch	diameter	\$22	00	
12	66	"	28	00	
15	66	"	84	00	
18	#	66	40	00	
21	66	46	50	00	



No. 2, Common Lever Scroll Chuck.



Parties ordering Lever Chucks will get this style if they do not specify any other. Any Chuck will hold a piece by the horn of the jaw as large as the diameter of the Chuck. Add 10 per cent. to all price lists for Chucks with four jaws.

> 6 in. 9 in. 12 in. 15 in. 13 in. 21 in. \$16.00 21.00 26.00 82 00 88.00 48.00

No. 3, DOUBLE LEVER SCROLL CHUCK.

FOR LIGHT WORK.

Persons who order Chucks without specifying what style of Jaw, will get them with Jaws having the Horn on the outside, as per cuts 1, 2 and 3.

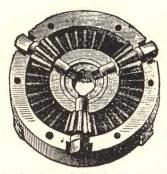
3	inch	diamete	r\$	8	00
4	"	"		10	00



CUSHMAN'S CHUCKS. No. 4, PATENT GEARED SCROLL CHUCK.

FOR SCREW MACHINES.

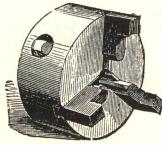




3	incles	diameter	. \$11	00
4	66	6:		00
i	**	"	. 15	00
6			. 17	50
9	6.	"	. 22	00

An inside view of Chuck No. 4. Ary style of Jaw made to order. Any number of sets of Jaws made for each Chuck at 20 per cent. additional for each set.

No. 5, GEARED SCROLL CHUCK.



3	inches	diameter		\$10	00
4	66	66		12	00
5	"	"	······	14	00
G	66	66		16	50
, Э	46	66		21	00
		Add 2	0 per cent. for 2 sets Jaws.		

No. 6, GEARED CHUCK, WITH REVERSE JAWS.

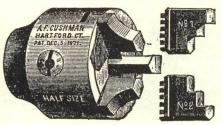
FOR HOLDING DRILLS, ETC.

3	inches	diamet	cr\$10	
4	66			00
5	66	*6	14	00
6	66	66	16	50
9	66	66		00

6 " " 16 50 9 " " 21 00 For Chucks with 2 sets of jaws, and 20 per cent. to above list.

CUSHMAN'S CHUCKS.

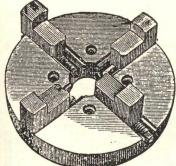
No. 7, New Patent Drill Chuck.



Warranted to be superior to any other, being more compact, stronger, durable, holding drills from 1-64 inch : 1 inch.

Price \$10.00 each, 2 sets Jaws
" 8.00 " single "

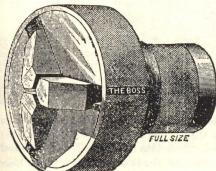
No. 8, New Improved Independent Jaw Chuck with Four Jaws.



9	inch	diameter	\$2	25	00
12	"	"	3	30	00
	66	66	8	35	00
20	66	"	5	0	00
24	"	"	(35	00

Chucks with only three jaws, 5 per cent. less than above.

CUSHMAN'S PATENT.



The Boss Drill Chuck

is warranted to be the best and and most perfect made Chuck in use. It holds from 0 to three-eighths inch, and is truly the Boss Chuck. Every piece is made of Forged Steel, and finished to a Gauge.

Weighs 9 ounces. Price \$6 50 each.



JOHNSON'S PATENT Universal Lathe Chuck.

Awarded First Premium by the Franklin Institute, Philadelphia, November, 1874.

The distinctive and peculiar plan adopted in the construction of this Chuck renders it superior to all others for the gener. work of the machine shop. Its working parts are all of s'. ndard sizes, interchangeable and ABSOLUTELY PROTECTED

FROM DIRT AND CHIPS. It .ill hold from the smallest piece to the full size of the Chuck, with a power that increases with the diameter of the work held, and is unequalled for firmness and durability.

The jaws are reversible and adapted to a variety of work. To parties desiring a first-class tool we guarantee satisfaction.

PRICES, INCLUDING SOCKET WRENCH;

7 inch\$25 00	13 inch\$45 00	18 inch\$65 00	24 inch\$100 00
10 inch 85 00	15 inch 55 00	21 inch 80 00	

The Westcott Combination Lathe and Drill Chucks.

Fig.1

PRICE LIST. Universal and Independent Combined. Three Jaws.

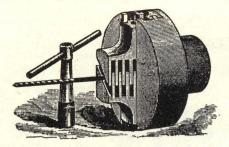
WILL HOLD

			NSID					
4 inch	Diameter		5	inch			827	00
6 inch								
9 inch				64			34	00
12 inch				66			41	00
15 inch				60				
18 inch				6 16			62	00
21 inch	66			"				
24 inch	46			66				
30 inch				**			170	00
36 inch				66			230	00
for Car	Wheels		43	66	••••	• • • • • •	250	00
I H INTE		Four	Jaw	78.				

			Fou	ur J	av	VS.			
				W	TIL	L HO	LD		
						E JA			
4	inch	Diameter			5	inch		 . \$25	00
	inch					66		 . 33	00
	inch	44			12	66		 . 42	00
	inch					**		 . 56	00
	inch	66			18	66		 . 64	00
	inch	66			21	× 66		 . 75	(0
	inch	66			26			 . 95	00
	inch					46		 . 120	00
	inch					"			

The Westcott Chucks are now said to be the most reliable Chucks made, and there has been a constantly increasing demand for them. The improvements consists in not only making the jaws reversible—by which arrangement the small size chucks can be used with facility in holding screws, pipes and drills—but also in making them to act independently of each other when required. This Chuck is, therefore, enabled to seize and hold firmly round, oval, square, oblong or eccentric shapes.

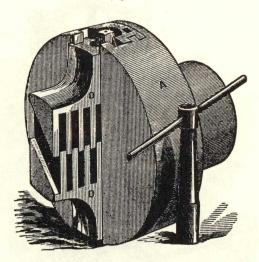
Self-Centering Little Giant Drill Chuck.



The Self-Centering Little Giant Drill Chucks, a recent invention also of Mr. West-cott's, are simple in their construction, direct and positive in their action, with capacity to hold drills of any size or shape within limits named for such size.

No. 1 LITTLE GIANT.

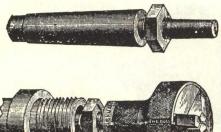
2 1-2 Inches in Diameter—Holds from 0 to 1-2 Inch. Price \$9.00. Can be sent by mail for 21 cts. to any place in the United States.



We furnish two sizes of these Chucks. The Smaller, or No. 1, is particularly adapted to doing light work when a high speed is required; and will hold drills from 0 to 1-2 inch. Only the best qualities of steel and iron are used in their construction, and all parts are accurately fitted to gauges.

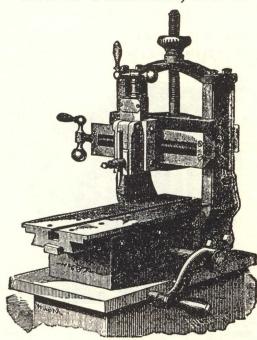
No. 2 holds drills from 0 to 1 inch. Is 3 1-2 inches in diameter. Price \$10 00.

Cushman's Plug Arbor for Drill Chucks.



This Arbor is furnished when desired, and the end that goes into the spindle of the lathe is left blank, so that it can be fitted to any taper. The other end is already fitted to the chuck, and in fitting it to the lathe, you must put the thread of the screw 90 in past the end of the spindle; then you can, with a wrench on the intermediate nut, remove either the chuck from the arbor, or the arbor from the spindle of the lathe with the greatest ease, avoiding all liability of breaking your chuck or injuring your arbor. This arbor is fitted for the Boss Chuck and for the 2 inch Key Drill Chuck.—Price \$1.00.

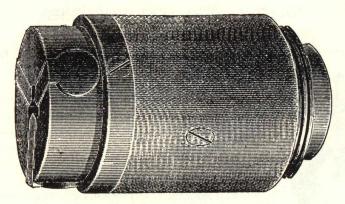
HAND PLANER, No. 1.



As an auxiliary to the Turning Lathe, the Hand Planer is a valuable machine. Small dies, pieces of steel, iron, brass, etc., can be accurately planed up on the face or sides at any angles. The cut represents such a machine, capable of planing 5% inches square, and 15 inches long. The cross-head turns and fustens at any angle for planing bevels. It is well made, and the price very reasonable.

Price	75 00
Chuck for holding pieces, if desired (extra)	13 00
Tools, each	35

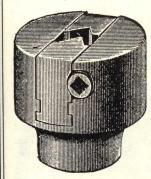
THE "VICTOR" CHUCK.



Price, - - - - \$8.50.

Holds from 0 to \S , and will carry \S by reducing the shank. The Chuck is steel throughout and of the finest mechanism.

REID'S NEW PATENT DRILL CHUCK.



It holds Round Drills from 0 to 2 inch, and Flat to 12 inch, and is the only Chuck made that holds FLAT as well as ROUND Drills.

Price. - - - 88.00.

The hole goes clear through, which makes it very convenient for many kinds of work.

It has but two jaws—one of them has a V shaped groove in its face and the other a corresponding projection, both operated by a single right-and-left screw. The clamping surfaces of the jaws are 1½ inches long, and the screw that operates them is a little nearer the front ends of the jaws than the back, thus affording greater clamping power and where most needed. The great difficulty with all other Drill Chucks is they will not hold the Drills as firmly in the front as the back of the jaws, thereby losing a great percentage of the clamping power, which difficulty has been successfully overcome in this chuck by an Entirely New and Novel Principle.

LeCount's Machinists' Tools.

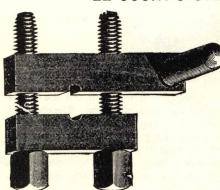
HOLLOW LATHE DOG OR CARRIER,

OF MALLEABLE IRON.

The Screws are Steel, cut in the Lathe, and hardened; are perfect fits with full thread in the box.

in the box.			
	P	RICES.	
No	. 1 [inch	\$ 35
4	2 }		40
	3		50
"	41	"	CO
· ·	51}	"	75
		"	90
" کے "	713	"	1 00
"	82	"	1 10
	SMALL	set, \$5 60.	
No	. 921	inch	\$1 35
"	103	"	1 50
"	11 3½	"	1 70
"	124	"	1 90
	FULL S	ет, \$12 00.	
5 Inch Dog			\$4 00
6 "			
‡ "			85

LE COUNT'S STEEL CLAMP DOG.

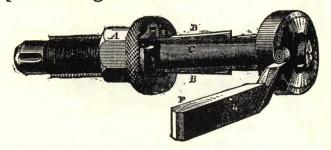


These are made from the Steel Bar and hardened all over, as well as the Screws. They will carry all that can be put on them. The tail is steel, turned and driven into a taper hole. The Screw Head is a ball, and will accommodate itself to a straight or taper piece

PRICES.

No.	1	opens	1	inch	1	\$1	25	
66	2	66	1}	"		1	50	
"	3	"	2	"		1	75	
			•	**		0	00	

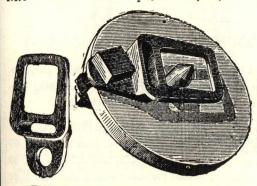
LE COUNT'S PATENT Expanding Mandrel or Arbor.



EXPLANATION OF CUT.

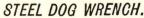
C is the steel mandrel; BB are two of the three keys that are drawn up and pushed down in a Dovetailed Groove, rising from the point, by the nut. A groove is turned inside the nut A, which catches the head of the key B, and thus draws them up to tighten the work. This, like any mandrel, requires a true hole to make a true job. Very heavy cuts, on large diameters, can be done on it without slipping. F represents the tool in operation. Is made of steel, and is a true and stiff tool. Will hold better than a mandrel driven by the hammer, do more satisfactory work than is generally done in that way, and where many changes are made, much more of it. All the working parts are hardened and well proportioned. It would take a great many Arbors of the old style to get the different sizes reached by these five Mandrels, and by the use of split rings, which can be made by any machinist, they can be expanded indefinitely. For very light rings or collars, it is best to use a split ring. It has now been in use for six years, and is giving general satisfaction both in this country and Europe.

No. 1 takes any hole inclusive bet. ½ and 1 in., \$10 No. 4 takes any hole inclusive bet. 2 and 3 in., \$32 No. 2 " " 1 and 1 ½ in., 14 No. 5 " " " 3 and 4 in., 48 No. 3 " Full Set, \$122 00



LE COUNT'S Patent Bolt Dog!

Price for Set of twelve sizes from 5-16 to 2 inches inclusive, \$2 50.



Fitting screw heads from % to % square Will answer for both Dogs and Tool-post. It is findshed and hardened. Price 75 cents.



LE COUNT'S IMPROVED STEEL DOG.

With hardened Steel Screws turned in the Lathe.

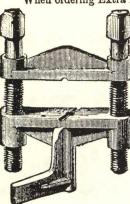
PRICES.		
1 § in	\$	40
2 ½ in		50
		CO
41 in		70
51} in		85
01½ in		95
71¾ in	1	10
7		
SMALL SET, \$6 30.		
92½ in	1	40
113½ in	1	80
full set, \$13 00.		
	1	1



LE COUNT'S DIE DOGS.

Have a Steel Frame, with two screws, so as to throw the center of die the same distance from tail of Dog on a small piece as on a large. The Dies are hardened, and a good job with Hardened Steel Screws. Extra Dies can be easily be fitted to suit any special work, or will be furnished as below.

		EXTRA DIES.	
No. 1	\$1 25	25c	inch.
No. 2	1 60	37c	inch.
No. 3	2 00	50c	1 inch.
No. 0, Amateurs or for foot l	athes 1 25	37c	3 inch.
When ordering Extra Dies pl	ease state which	you require, the V	or tongued.



LE COUNT'S PATENT CLAMP DOG.

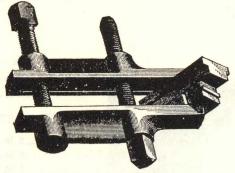
Used for finished work and for many other purposes. They are well made, and of four sizes taking anything from close to the sizes given. Made of Mallcable Iron.

CLAMP DOGS.

No.	1	51	00	
No.	2	1	10	
No.	8	1	30	
No.	4	1	60	

SET OF FOUR, \$5 00.

LE COUNT'S VICE CLAMP,



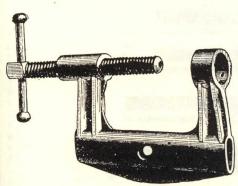
With Steel Screws, hardened the whole length, a spring temper and ball head, so as to clamp an object at any angle without bending the screws. The clamps are also steel and of great strength.

PRICES.

No.	1	opening	1 inch	\$1 25	1 2
**	2	""	2 inch	1.60	93
6.	8	66	8 inch	2.00	节

LE COUNT'S PATENT MACHINISTS' CLAMP,

Of Malleable Iron with hollow back and Steel Screws, Hardened



The foot is finished square by the screw. The screws are long and hard-ened, a perfect fit with full thread in the box.

STRONG ENOUGH FOR MA-CHINISTS' USE.

PRICES.

No.	1,	2	in.,	\$1.40	No. 4, 5 in " 5, 6 in Sett	., \$2.00
"	2,	3	"	1.60	" 5, 6 in	., 2.20
66	3,	4	66	1.80	Sett	9.00

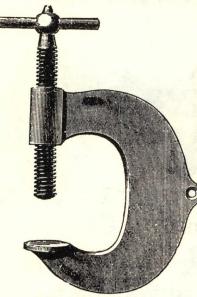
LeCount's New and Improved Boiler Clamp.

Is made of steel; is heavy and very strong; the foot is planed square by the screw; the screw is a good job, done in the lathe on true centers, and a good fit in a long nut with a full thread. Is suitable for any heavy work. Opens four inches from center of screws and runs back four and one-half inches.

PRICES.

Steel	34.00
Steel	3.00
ron	0.00

LE COUNT'S STEEL CLAMP

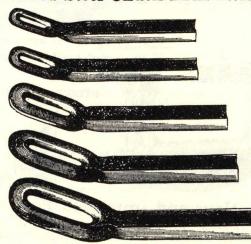


Is very strong, with long perfect screws. Hardened Steel. The foot is finished square by the screw, so there is no slip.

PRICE LIST OF STEEL CLAMPS

No.	12	in	\$1.50
	23		
66	84	in	2.00
66	45	in	2 25
66	45 56	in	2.50
	r		

LeCount's Steel Chuck Drill Holders.



They are of five sizes. The slot is rounded every way, as to avoid corners that interfere with centering the Drill.

Taps, Dies, and Screw Plates.







. PL

BOTTOMING

MACHINISTS' HAND TAPS.

		4		4	DAIMETER.	NO. THREADS	PRICE LACH	PRICE PER SET.
R T	anstos	set Taper	Plugand	Bottoming	1- 4	16, 18 and 20	\$0 45	\$1 85
B	16	K	"	"	5-16	16 and 18	50	1 50
8	et	46	66	**	3-8	14, 16 and 18	55	1 65
3	46	46	46	"	7-16	14 and 10	CO	1 80
3	66	**	66	66	1- 2	12, 13 and 14	70	2 10
8	66	66	66	46	9-16	12 and 14	80	2 40
3	46	66	66	66	5-8	10, 11 and 12	90	2 70
3	46	66	46	el	11-16	11 and 12	1 05	3 15
3	"	44	66	"	3-4	10, 11 and 12	1 20	3 60
3	66	60	44	66	13-16	10,	1 40	4 20
3	46	46	46	46	7-8	9 and 10	1 60	4 80
3	66	66	66	46	15-16	9,	1 80	5 40
3	"	44	66	"	1	8,	2 00	C 00
3	44	46	46	46	1 1-8	7 and 8	2 25	6 75
3	44	44	66	66	1 1- 4	7,	2 60	7 80
3	**	46	"	44	1 3- 8	6,	3 00	0 00
3	66	44	"	"	1 1- 2	6,	3 50	10 50
3	**	"	"	"	1 5- 8	5 and 51	4 20	12 60
3	**	"	"	**	1 3- 4	5,	5 00	13 00
8	44	66	"	"	1 7- 8	41 and 5	5 80	17 4)
3	61	44	"	"	2	41,	6 70	20 10

We make the above a thirty-second over size for rough iron.

MACHINE OR NUT TAPS,

LONG SHANK.

	DIAMETER,	NO. THREADS TO INCH.	PRICE EACH.
	1- 4	18 and 20	\$0 60
AT e	5-16	16 and 18	70
A P R	3- 8	14 and 16	80
	7–16	12, 14 and 16	90
938	1- 2	12, 13 and 14	1 00
	9–16	12 and 14	1 15
	5- 8	10, 11 and 12	1 30
	11–16	11 and 12	1 45
	3- 4	10 and 11	1 60
	13–16	10,	1 80
	7- 8	9 and 10	2 10
	15–16	9,	2 40
	1	8,	2 80
	1 1-8	7 and 8	3 20
	1 1-4	7,	3 70
	1 3-8	G,	4 20
	1 1-2	6,	4 70
	1 5-8	5 and 51	5 30
	1 3-4	5,	6 00
	1 7–8	4½ and 5	6 80
	2	41,	7 70

Taps of irregular shape or length made to order at special prices.

Hubs or Master Taps are 25 per cent, higher than Nut Taps. State in ordering whether for solid or opened dies.

In ordering tools always state the thread wanted.

We can furnish the above a thirty-second or sixty-fourth over size.

BLACKSMITH TAPER TAPS



DIAMETER.	NO. THREADS TO INCH.	PRICE EACH.
1- 4	16, 18 and 20.	\$ 85
5-16	16 and 18.	4)
3-8	14 and 16.	45
7-16	14 and 16.	50
1-2	12, 18 and 14.	55
9-16	12 and 14.	65
5-8	10, 11 and 12.	75
11-16	11 and 12.	85
8-4	10, 11 and 12.	1 00
13-16	10.	1 15
7-8	9 and 10.	1 80
15-16	8.	1 45
1	7 and 8.	1 60
1 1-8	7.	1 90
1 1- 4	G.	2 80
1 3- 8	6.	
1 1- 2	5 and 5}	3 00
		8 50
1 5-8	5.	4 25
1 3-4	4½ and 5.	5 00
1 7-8	4}.	6 00
2	••••••	7 00

TAPS FOR MACHINE SCREWS.

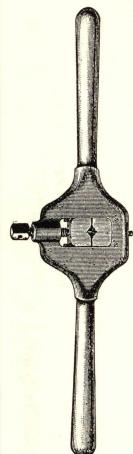
WIRE GAUGE.

DIAMETER.	WIRE GAUGE SIZE.	NO. THREADS TO INCH.	PRICE
7-64	No. 4	36 and 40	85 cts.
9-64	" 6	30, 32, 36 and 40	35 "
1-8		30, 32 and 36	35 "
5-32	" 8	30 and 32	35 "
3-16	" 10	20, 22 and 24	35 "
7-32	" 12	20, 22 and 24	35 "
1-4	" 14	18, 20 and 22	38 "
17-64	" 10	16, 18, 20 and 22	38 "
9-32	" 18	16, 18 and 20	38 "
5-16	" 27	16, 18 and 20	45 "
£-8 ·	" 24	11, 16 and 18	45 "

All other sizes and threads machine screw taps made.



SCREW PLATES AND DIES.



Unless otherwise ordered, Dies will be furnished as

No. 1, with 5 pair Dies, 3-16, 1-4, 5-16, 3-8, 7-16 in. diameter....\$7 00 No. 2, with 5 pair Dies, 1-2, 9-16, 5-8, 11-16, 3-4 in. diameter....10 00 No. 3, with 5 pair Dies, 13-16, 7-8, 15-16, 1, 1% in. diameter....15 00

No. 1 Plate will take Dies from 3-16 to 1-2 inclusive.

No. 2 " " 3-8 to 7-8

No. 3 " " 3-4 to 114 "

In order to remove the dies, push the pin in the bottom of the plate.

SCREW PLATES WITHOUT DIES.

No.	1	 \$3	25
No.	2	 5	00
No	3	 6	50

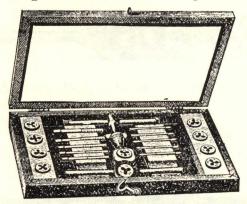
No. 0 Screw Plate and Dies-



PATENT ADJUSTABLE TAP WRENCH.

Fitting Taps from 1 to 1 inclusive, \$2 25.

Elterich's Improved Screw-Cutting Tools, In Sets.



(Representing Set No. 3 in Walnut Case.)

These Sets are furnished with either walnut or morocco cases, as desired.

WATCHMAKER'S SET.

Contains one Die-Holder and one Tap and Die each, A, B, C, D. Price, in walnut case, \$3.75; morocco case, \$4.50. Price with Tap-Wrench, nickel plated, \$1 extra.

JEWELLER'S SET.

Contains one Die-Holder and one Tap and Die each, Nos. 1, 3, 5 and 6. Price, in walnut case, \$3.75; morocco case, \$4.50. Price with Tap Wrench, nickel plated, \$1 extra.

WATCHMAKER'S AND JEWELLER'S SET COMBINED.

In One Case.

Price, in walnut case, \$7.50; morocco case, \$8 50. Price with Tap-Wrench, nickel plated, \$1 extra.

SETS FOR MACHINE-SCREWS.

No. 0 contains one Die-Holder and one Tap and Die each, Nos. 4, 6, 8, 10 and 12.

Price, in walnut case, \$5; morocco case, \$5.50.

No. 1 contains one Die-Holder, one Tap-Wrench, and one Tap and Die each, Nos.

4, 6, 8, 10, 12 and 14. Price, in walnut case, \$7; morocco case, \$8.

No. 2 contains one Die-Holder, one Tap-Wrench, and one Tap and Die each, Nos. 2,

No. 3 contains one Die-Holder, one Tap-Wrench, and one Tap and Die each, Nos. 2,

3, 4, 6, 8, 10, 12 and 14. Price, in walnut case, \$3.50; morocco case, \$9.75.

No. 3 contains one Die-Holder, one Tap-Wrench, and one Tap and Die each, Nos. 2, 3, 4, 5, 6, 8, 12 and 14, and two each Taps and Dies No. 10. Price, in walnut case, \$10;

morocco case, \$11.25.

The above are furnished with standard Machine-Screw Threads and Plug-Taps,

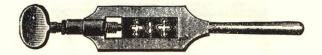
The above are furnished with standard Machine-Screw Thread on the list or unless otherwise ordered. Parties ordering may have any size or Thread on the list, or may have either Plug or Taper Taps, or both, as they desire.

IMPROVED ROUND DIE-HOLDER.



Watchmaker's and Jeweller's size, 3 in. long, price 80 cents each (without Dies). Machine-Screw size, 5 in. long, price \$1 each (without Dies).

SCREW PLATES AND TAPS.



No. 00, 6 in. long, 4 sets Dies, 4 Taps, cutting $\frac{1}{16}$, 64; $\frac{3}{32}$, 56; $\frac{7}{64}$, 48; $\frac{1}{8}$, 40; \$2 50 No. 0, $\frac{7}{2}$ " " " $\frac{7}{64}$, 48; $\frac{1}{8}$, 40; $\frac{7}{9}$, 32; $\frac{1}{4}$, 24; 3 00 No. 1½, 8 " " " $\frac{9}{64}$, 32; $\frac{5}{32}$, 30; $\frac{7}{32}$, 24; $\frac{1}{64}$, 20; 3 25 Extra Dies, any required thread, per set, $\frac{7}{64}$, 32; $\frac{5}{32}$, 30; $\frac{7}{32}$, 24; $\frac{1}{64}$, 20; 3 25 Extra Taps, each, $\frac{7}{64}$, 32; $\frac{5}{32}$, 30; $\frac{7}{32}$, 24; $\frac{1}{64}$, 20; 3 25



No. 1, 7 in. long, 3 sets Dies, 6 Taps, \$\frac{2*0}{64}\$, 40; \$\frac{10*11}{64}\$, 36; \$\frac{12*13}{64}\$, 32;

No. 2, 8 " " to fit Machine-Screws, Nos. 6
and 8, 32; 10 and 12, 24; 14 and 16, 20; - - 450

No. 2\frac{1}{2}\$, 11\frac{1}{2}\$ in. long, 3 sets Dies, 3 Taps, \$\frac{1}{2}\$, 12; \$\frac{3}{6}\$, 16; \$\frac{1}{4}\$, 20; - 500

No. 3, 14 " " \$\frac{1}{2}\$, 12; \$\frac{7}{6}\$, 14; \$\frac{3}{6}\$, 16; - 550

Extra Dies for No. 1 Plate, 50 cents; No. 2, 50 cents; No. 2½, 75 cents; No. 3, 75 cents.

Extra Taps for No. 1, 35 cents; No. 2, 35 cents; Nos. 21 and 3, list price.



TAP WRENCHES.

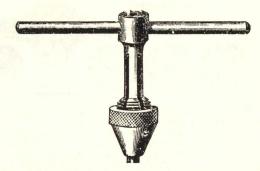
These Wrenches are made in the same style as the above Plate, are well finished in every respect, have Steel Dies, and are strong and durable.

No. 0, 5½	inches	long,	fitting	Taps,	7.	to	1	inch,	-	-	\$1 00
No. 1, 8	66	"	"	66	1	to	8	66		-	1 50
No. 2, 12	66	66	66	66	1	to	5	66	•	-	2 00
No. 3, 17	66	"	66	66	1/2	to	1	66	-	-	3 00
No. 4, 24	66	66	66	66	3	to	1	66	-	-	4 00

PATENT ADJUSTABLE TAP WRENCHES inch diam., inclusive..... 33 Size A, fitting Taps from "B, "C, "

THE NEW ADJUSTABLE TAP-WRENCH.

(PATENT APPLIED FOR.)



The New Adjustable Tap-Wrench will center and hold Taps from 1 inch to the smallest size. It can be used in a Lathe, as the top is centered. It also makes a good Broach or Reamer Holder, and is a model of neatness, beauty, and strength.

This wrench fills a want long felt by the trade, and is offered at a price that places it within the reach of all.

Price, No. 1, \$1.00; No. 2, \$1.25.



Nos. 3 and 4.

Nos. 3 and 4 are intended almost exclusively for lathe-work. Although they are also used for hand work. They are set in finished hard-wood handles.

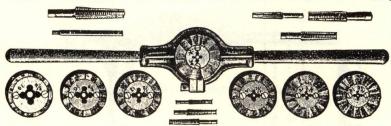
No. 3 holds the same sizes as No. 1.

Price, each, \$0.75.

No. 4 holds the same sizes as No. 2.

Price, each, \$1.25.

THE LIGHTNING SCREW PLATE



This will be acknowledged upon examination to be the most perfect tool ever invented for its purposes.

It is warranted to do five times the work possible with any other screw,

The threads cut with it are far more perfect than can be made with any other hand tool, and equal to the best machine work, being neatly and sharply cut out of the bolts, instead of being bruised upon them, so that no burr is raised above the true size.

It finishes its work at one cut, notwithstanding which, its operation is easier than the first trial with the common plate. A man can cut 11 in. bolt without help, say threads 3 in. long. ONE IN THREE MINUTES.

Nuts and bolts threaded with it need not be matched and kept together—they always

correspond without trying and fitting.

The dies are adjustable for wear, so as to keep the exact size of the taps, notwithstanding long use, and to allow of nuts and bolts for different purposes being made to fit together tightly or loosely as desired. Until absolutely worn out they are always exactly When used up they can be replaced, the plate and collets remaining good.

The collets holding the dies have guides for starting bolts true, but when desirable to

cut close under the heads of bolts the face side of the die is used.

Assortment O. Stock 6 Inches Long.

Taps, Dies, Tap Wrench, Stock, &c., with sizes: 1-8, 5-32, 3-16, 7-32, Price, in Case..... Assortment A, Stock 10 Inches Long. Taper or Plug Taps, Dies, Holders, Stock, &c., of the following sizes:
3-16, 5-16, 3-8, 7-16 in. 1-4, 3-8, 7-16 in. Price, Complete... .\$10 00extra 1 30 Assortment B, Stock 23 Inches Long. Taper Taps, Dies, Holders, Stock, &c., of the following sizes:

1-4 5-16, 3-8, 7-16, 1-2 5-8, 3-4 in. Price, in Case. ### 1-8, #2 00; 1-4, #2.25; 3-8, #2.65; 1-2, #3.10; 3-4 in., #4.50.

Assortment C, Stock 26 Inches Long.

Taper Taps, Dies, Holders, Stock, &c., of the following sizes:
3-8
7-16,
1-2,
5-8,
3-4, Price, in Case..

To above may be added 3-16, 1-4, 5-16 in. or any intermediate sizes, at list prices; also the following PIPE DIES AND HOLDERS:

1-8, \$2.00; 1-4, \$2.25; 3-8, \$2.65; 1-2, \$3.10; 3-4, \$4.50; 1 in , \$5.50. .832 75

Assertment D, Stock 53 Inches Long.

Taper Taps, Dies, Holders, Stock, &c., of the following sizes:

1 3-8. 1 1-2 in. Price, Complete\$60 00

To above may be added any intermediate sizes at list prices; also the following PIPE DIES AND COLLETS IN D PLATES:
1-2, \$3.25; 3-4, \$4.75; 1 in., \$6.00.

The Pipe Dies are a superior article, not solid, but in two pieces, and adjustable on the same principal as the Bolt Dies.

LIST OF PRICES, separately, OF TAPS, DIES, &c., for LIGHTNING PLATES.

Sizes- Inches.	Number Threads to inch	H'd Taps, each, Tap'r Plug or Bot'm'g	Dies, each, without Collets.	Taps, Dies and Collets. Sets, each. For Bolts.	Pipe Dies, each, without Collets.
1-4	18 and 20	\$0 45	\$1 00	\$2 20	\$1 50
5-16	16 and 18	0 50	1 00	2 25	
3-8	14 and 16	0 55	1 15	2 45	1 90
7-16	12, 14 and 16	0 60	1 30	2 65	
1-2	12, 13 and 14	0 70	1 50	2 95	2 35
9-16	12 and 14	0 80	1 75	3 30	
5-8	10, 11 and 12	0 90	1 90	3 55	
11-16	11 and 12	1 05	2 10	3 90	
3-4	10	1 20	2 35	4 30	3 75
13-16	10	1 40	2 60	4 75	
7-8	9 and 10	1 60	3 00	5 35	
15-16	9	1 80	3 40	5 95	
1	8	2 00	3 75	6 50	5 00
1 1-8	7 and 8	2 25	4 40	7 65	
11-4	7	2 60	5 00	8 60	5 50
1 3-8	6	3 00	5 75	9 75	
1 1-2	6	3 50	7 00	11 50	5 50

Plate for Size A, \$2. Sizes Band C—Plate \$4.; Collets 75 cts. each. Size D—Plate \$10; Collets, \$1 each. Unless otherwise ordered, we fit the Lightning Plates with taps and dies for rough iron 1-64th over standard size for all sizes 7-16th inch and under, and for all larger sizes, 1-32d over.

The A-1 Lightning Set for Straight or Crooked Work.



Price of complete Set, with Taps and Dies—3-16th, 1-4, 5-16, 3-8 and 7-16 in.—Stock, Bit Brace holder, and 5 Nut wrenches, \$12.75. Bit Brace holder alone (fitting all above sizes) \$1.75. Nut wrenches, each, 20 cents. To above may be added, if required, 1-8 in. pipe die to fit both Stock and Brace holder, \$1.30. Full Set of Taps and Dies (five sizes) for Bit Brace use, with Brace holder and Nut wrenches, \$10.75. These dies and taps make perfect threads, equal to machine work, in a fifth the usual time, cutting the screw neatly out of the iron, instead of raising it, and carriage-makers will find the bolts always to drive through wood-work without tearing.



PRICES. 3-16, 1-4. 5-16, 3-8, 7-16in Die Tap & Holder complete \$2.25 \$2.25 \$2.30 \$2.50 \$2.60 der complete 1.00 1.00 1.00 1.15 1.15 Die only...... 50 55 60 70 Tap only

Lightning Bit Brace Taps and Dies. | Lightning Nut Wrenches for Bit Brace For Square or Hexagon Nuts. Use.



Sets of five Wrenches for nuts, 1-4, 5-16, 3-8, 7-16 and 1-2 inch.

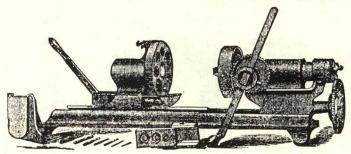




These Chucks, suitable for Bolt Cutters and Hollow Spindle Lathes, will be found to be accurately made, and very powerful. Jaws, Norway iron, carefully case-hardened.

Diame	ter, 7	in,	Jaws open	13-8	in.	Price	15	00
**	8		**	21-2		**	17	50
	11	66	44	3.		**	25	00

BOLT CUTTER, NUT TAPPER AND DRILL COMBINED.



No. 0.—Hand Bolt Cutter and Nut Tapper, especially for crooked work. Made to be bolted to the Bench or table. Fitted with seven sizes, from 1-4 to 3-4 in. Usual assortment, 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4 in. Price, with taps, dies in collets, etc., complete, \$60.00. Collets for extra dies, each \$1.00. When desired, we furnish 7-8 in. tap, die and collet with this machine, charging \$6.87 extra.

Dies (in collets) for threading nine in machine.

\$2.50	\$2.90	\$3.35	\$4.75	\$6.00	
1-4,	3-8,	1-2,	3-4,	1 in.	

Price of machine with above set of pipe dies, alone, \$50.00.

No. 1.—Hand Bolt Cutter, Nut Tapper and Drill combined, for the Bench or Table. Fitted with seven sizes, from 1-4 to 3-4 in. Usual assortment, 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4 in. Drill with Automatic feed. Price, with taps, dies, nut chuck and drillrests, \$85.00.

No. 2.—Same as above, but mounted handsomely and strongly on iron legs, complete, \$95.00. Extra 7-8 in. tap and die furnished at \$5.87. Hole through spindle, 1 3-8 in.

The Chuck has Norway iron case-hardened jaws, formed to hold irregular shaped bolt heads, and to pass rods of any length to be threaded. The dies are set in a revolving head, so that all the sizes are always ready, and any one can be brought into line without delay. Nuts are tapped by a very convenient device, shown in the cut, held in the vise with the dies. In drilling, the tail block with revolving head and dies is slid off and replaced with the drill-rest. The Automatic feed at the head-stock is brought into play by dropping its dog into place. It is capable of being regulated to feed fast or slow, according to the work. Weight of machine about 150 lbs.

Hundreds of these machines are in use in repair shops of cotton and woolen mills,

and in other places where the combinations of bolt-cutter and drill is wanted.

No. 14 AND No. 24 BOLT CUTTERS AND NUT TAPPERS.

No. 11.—Hand Bolt Cutter and Nut Tapper.—For the Bench or Table. Fitted with seven sizes, from 3-8 to 1 in. inclusive. Usual assortment, 3-8, 7-16, 1-2, 5-8, 3-4, 7-8 and 1 in., all 1-32d over exact standard, unless otherwise ordered. Price, complete with taps, dies, nut-chuck, etc., \$100.00.

No. 21.—Same as above, but mounted handsomely and strongly on iron legs, com-

plete, \$110.00.

If desired, we can furnish the following extra tools with No. 11 and No. 21 machines Taps and Dies (in collets) for nuts and bolts:

\$2.75	\$2.90	\$9.65		\$10.88
1-4,	5-16,	1-1-8,		1 1-4 in.
Dies (in collets) for	threading pipe in	machine:		
\$2.50	\$2.90	\$3.35	\$4.75	\$6.00
1-4,	3-8,	1-2,	3-4,	1 in.

Hole through Spindle, 13-8 in. Also make machines cutting bolts up to 1½ inch.

BUFFALO PORTABLE FORGES.

THE ONLY PERFECT PORTABLE FORGE MADE.



ADAPTED FOR THE USE OF

MACHINISTS,

BLACKSMITHS,

TINSMITHS,

COPPERSMITHS,

PLUMBERS.

Letter A, No. 1, Half Open Hood.

Size of Fan, 8 inches; size of Hearth, 21x27 inches; heighth of Fireplace, 29 inches; weight, 150 pounds.

Price. - 840.00.

Letter A, No. 2, Entirely Closed Hood.

Size of Fan, 8 inches; size of Hearth, 21x27 inches; height of Fireplace, 29 inches; weight, 155 pounds.

Price, - . \$42.00.

ADAPTED FOR

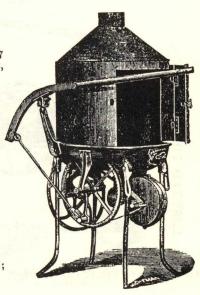
THE USE OF

TINSMITHS,

PLUMBERS.

MANUFACTURING JEWELERS.

Jewelers' Forges, No. 4, \$27.00; No. 5, \$24.00; No. 6, \$30.00.



THE BUFFALO FORGE.

ADAPTED FOR

THE USE OF

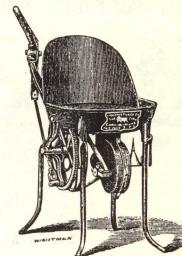
BOILER MAKERS,

BLACKSMITHS,

CARRIAGE MAKERS,

IRON BRIDGE

BUILDERS,



ARCHITECTURAL

IRON WORKS,

REPAIRING OF

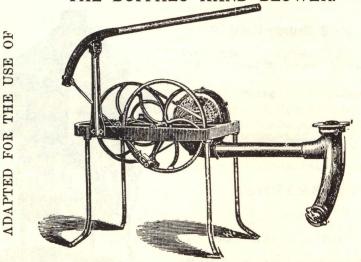
BOILERS IN SHIPS,

PLANTERS & FARMERS,

QUARRYMEN,

MINERS, &c.

THE BUFFALO HAND BLOWER.



BLACKSMITHS IN GENERAL

No. 2.—Size of Fan, 12 inches; height, 35 inches; length, 35 inches; weight, 140 lbs.

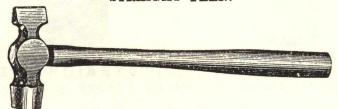
Machinists' Hammers.

Solid Cast Steel, with Handles.

BALL PEEN.



STRAIGHT PEEN.



CROSS PEEN.



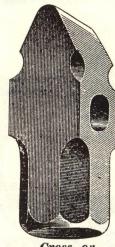
Numbers { Weight Price Per Doz Price Each	1 lb. \$11.00	0 1 lb. 4 oz. \$13.00 1.15	1 1 lb. 8 oz. \$14.00 1.25	2 1 lb. 14 oz. \$16.00 1.35	3 2 lb. 3 oz. \$18.00 1.50
Numbers Weight Price Per Doz Price Each	4	5	6	7	8
	2 lbs. 8 oz.	2 lbs. 12 ozs.	3 lbs.	3 lbs. 5 oz.	3 lbs. 12 ozs.
	\$20.00	\$22.00	\$24.00	\$26.00	\$28.00
	1.65	1.75	2.00	2.20	2.40

BLACKSMITHS' SLEDGES.

Best Solid Cast Steel.



New England Pattern.
STRAIGHT PEEN.



STRAIGHT PEEN.

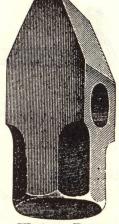
Weight 2 to 5 pounds and 6 to 18 pounds. Price per pound, 30 cents.

Blacksmiths' Hand Hammers.

Not Handled. Best Solid Cast Steel.



New England Pattern.



Western Pattern.

Weight 2½ to 5 pounds. Price per pound, 34 cents.

BLACKSMITHS' BELLOWS.

BALTIMORE STANDARD (WARRANTED.)

BEST QUALITY SELECTED LEATHER, GALVANIZED NAILS.

26 in., \$10; 28 in., \$11; 30 in., \$12; 32 in., \$14; 34 in., \$16; 36 in., \$18; 38 in., \$20; 40 in., \$23.



EAGLE ANVILS.

The working surface is in one piece of Jessop's Best TOOL CAST STEEL, accurately ground, hardened and given the proper temper for the heaviest work. The horn is covered with, and its extremity made entirely of tough, untempered steel.

The body of the Anvil is of the strongest grade of

American iron, to which the cast steel face is warranted

to be thoroughly welded and not to come off.

3 4 6 000 00 1 2 5 Weighs about \(\frac{1}{2}\) 1b. 4 lb. 10 lb. 15 lb. 20 lb. 30 lb. 40 lb. 50 lb. 60 lb. 70 lb. 80 lb. 90 lb. Price each, \(\frac{1}{3}\) 100 \(\frac{1}{3}\) 20.0 \(\frac{1}{3}\) 2.00 \(\frac{1}{3}\) 3.75 \(\frac{1}{3}\) 4.25 \(\frac{1}{3}\) 5.00 \(\frac{1}{3}\) 5.75 \(\frac{1}{3}\) 60.25 \(\frac{1}{3}\) 7.00 \(\frac{1}{3}\) 7.50 \(\frac{1}{3}\) 80.0 \(\frac{1}{3}\) 3.75 \(\frac{1}{3}\) 4.25 \(\frac{1}{3}\) 5.00 \(\frac{1}{3}\) 5.75 \(\frac{1}{3}\) 60.25 \(\frac{1}{3}\) 7.00 \(\frac{1}{3}\) 7.50 \(\frac{1}{3}\) 8.00 \(\frac{1}3\) 8.00

PETER WRIGHT'S ANVILS.

SOLID WROUGHT IRON and Steel Face, from 80 to 100 pounds (imported). Price per pound, 15 to 18 cents.
BICK IRONS, or small Anvils for Bench Work, made of Wrought Iron, with Steel Faces.

Length of Face..... 3 in. 4½ in. 5 in. 7 in. Price each......\$0.75
SQUARE TOP ANVILS, or Stakes. 3.75. 0.88 1.50

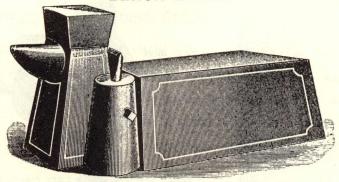
11 inch. 11 inch, square. Size..... 1\frac{1}{2} inch. 0.88.

3x3 inches, 4x4 inches.

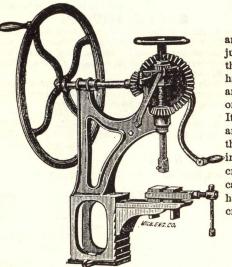
Price each...\$2.00 2.50 3.00.

CAST IRON SURFACE PLATES, planed on both sides.
Size......6x6 inches, \(\frac{3}{2}\) inch thick, 8x8 inches, 1 inch thick. Price each....

BENCH ANVIL.



Coe's No. 1, Upright Double Geared Drill Press.



This Machine is improved in design, and has self-feed and vise, which are adjustable, and will work with or without them, as may be desired. This Machine has no equal in the market for Carriage and Blacksmith work. It will drill a hole one inch in diameter with perfect safety. It is so constructed that power and speed are combined in one machine; by using the side crank, speed is obtained for drilling small holes. By using the fly-wheel crank gives power, and one-inch holes can be drilled with same strength as one-half-inch holes can be drilled with side crank.

Price, - - \$40.00.

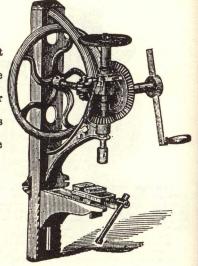
Less without Vise, \$2.50.

Coe's No. 4, Post Drill Press.

The new No. 4 Post Drill we put up to meet the demand for a more compact, and, at the same time, the most powerful Post Drill for its size there is in the market, adding to its other merits a larger sweep than any Machine made.

Price, without Vise, - - \$30.00.

Vise, catra, \$2.50.



Upright Self-Feeding Drills.



UPRIGHT SELF-FEEDING DRILL.

No. 1 Drills from 1 to 2 inch Hole.

Length, 42 inches.

Weight, 95 pounds.

Price, with Balance Wheel, \$28.00 each.
" without " " 25.00 "

No. 1 1-2.

UPRIGHT SELF-FEEDING DRILL.

No. 11 Drills from 1 inch to 1 inch Hole.

Length, 44 inches.

Weight, 120 pounds.

Price, - 838.00.

No. 2.

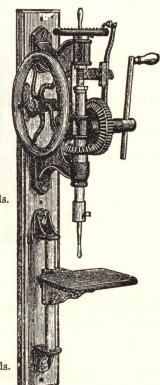
UPRIGHT SELF-FEEDING DRILL.

No. 2 Drills from 1 inch to 1 inch Hole.

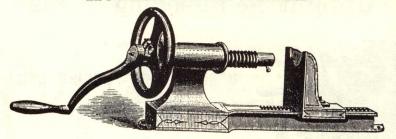
Length, 54 inches.

Weight, 160 pounds.

Price, with Balance Wheel, \$48.00 each.

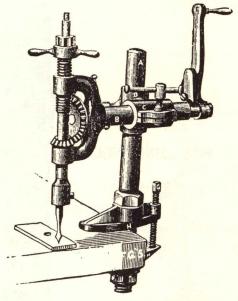


HORIZONTAL DRILL.



With or without Friction. Length, 26 inches. Price, with Feed. \$7 00
Price, without Feed. 6 00

Improved Patent Universal Angular and Ratchet Drilling Machine.



This Machine will work at any angle by placing the crank on the drill spindle. It will work with a ratchet or without. We send a Chuck with each machine, which will hold 1-16 to \(\frac{1}{2} \) drills.

N	o. 1	1,	Weigh	t 26	lbs.,	drills	up to	5	Hole	\$34 00	
6	. 2		"	52	44	**	- 44	1			
4	. 3		66	106	"	46	4.6	14		65 00	
4	4		"	52	66	66	44	11		58 00	

The No. 4 is made of steel and malleable iron. Nos. 1, 2 and 3 are wrought, malleable and gray iron.

GREEN RIVER DRILLING MACHINES.



No. 2.—Drills to & in.
Drill bits should have 1/2 inch shank. Diameter balance wheel 161/2
in. Drills to center of 151/2 inch circle.
Weight, 130 lbs.

Fitted with pulley for belt, if desired, \$5.00. extra.
Counter-shaft, \$12 00 extra.
Counter-shaft, \$12 00 extra iron case-hardened jaws, fitted to machine when required, \$12.00 extra.

O. 3.—Drills to 1 inch. Same style as No. 2, but larger.
Drill bits should have 41-64 in. Shanks. Diameter balance-wheel,
Oin. Drills to center of 20 in circle. 20 in.

Weight, 200 lbs. Price, complete... Fitted with pulley for belt, if desired, \$5.00 extra. Counter-shaft, \$12 extra. Chuck, if required, \$12 extra.

No. 4.—Drills to 1½ in. hole.

Diameter of balance-wheel, 20 in. Weight 250 lbs.

Drills to center of 20 in. circle.\$70 00 Price, complete....

Speeded for small work when crank is applied as shown in the cut. For heavy work and for screw cutting, the crank is placed in the wheel at the side of machine, which multiplies the power nearly three times.

Screw cutting attachment with taps and dies, ¼, 5-16, ‰, 7-16, ¼, ½, vise and tap chuck complete, extra, \$30.00.

Fitted with pulley for power, \$5 extra. Counter-shaft, \$12 extra.

Twist Drills for Use in Above Machines.

With shanks ½ in. diameter, 3-16, 50c.; ¼, 60c.; 5-16, 70c.; ¾, 70c.; 7-16, 90c.; ½, \$1.00; 9-16, \$1.20; ¾, \$1.40; ¾, \$2.00. With shanks 41-64th in. diameter, 3-16, 60c.; ¼, 70c.; 5-16, 75c.; ¾, 85c.; 7-16, 90c.; ¼, 95c.; 9-16, \$1.00: ¾, \$1.05; ¾, \$1.25; ¾, \$1.45; 1, \$1.80; 1¼, \$2.20.

No. 2, Weight, 130 lbs.

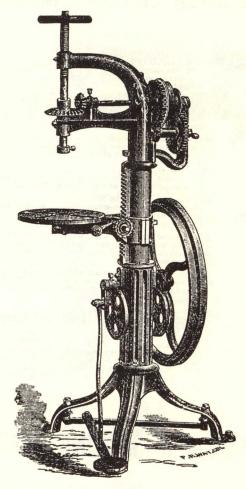
THE HENDERER DRILLING MACHINES.

	WEIGHS.	PRICES.
10 mar 10	Feed120 lbs.	\$16 00
	Feed	18 00
No. 0, Self		20 00
No. 2, Hand		20 00
No. 21/2 Self		26 00
No. 3. "		26 00

The feed-wheel stands vertical, which is very handy for the operator.

We have not space to illustrate these Drills, but it is one of the best Drilling Machines of its kind in the market.

THE FOOT DRILL PRESS.



This is a new tool, gotten up expressly for Carriage makers, country Blacksmiths, etc. Its extremely low price commends it to the favorable notice of the public. By its use more work can be done than by the Hand Drill Press, and at greater ease. It will drill up to %, and if backgeared, up to 1½ inches. It is all iron, and made strong and substantial.

Price of Foot Drill Press	850	00
Price, with Rock Gene	75	00

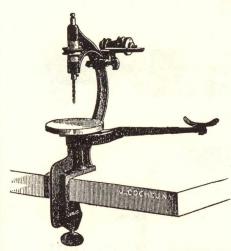
This Machine can be used with power.

This Foot Drill enables the mechanic to use both hands and feet—the feet to give power, and the hands to hold the work.

PATENT FOOT OR STEAM POWER

DRILLING MACHINE,

For Jewelers, Opticians, Mechanics, &c.



No. 1. This Drill is especially adapted to the work of Jewelers and Opticians, being light, strong and sensitive. The distance between the Drill Holder and Bed Plate is three inches, diameter of Bed Plate is four inches, length of Lever for Bed Plate is nine inches. The Belt can be tightened at any time without cutting, by means of the back pulleys, which can be set forward or backward at pleasure.

Weight, 6 pounds.

PRICE, \$10.00.

DRILL No. 2.

No. 2. This Drill is adapted to the light work of Machinists and other workers in metals.

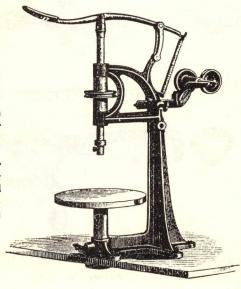
It is much heavier and larger than the No. 1. Drill, though very sensitive and accurate.

The distance between the Drill Hole and Bed Plate is 3½ inches, diameter of Bed Plate, 7 inches.

The Drill is fed to the work by a lever on top, and has a fall of 3½ inches, the Bed Plate can be also raised 3½ inches. The Belt can be tightened in the same manner as in the No. 1.

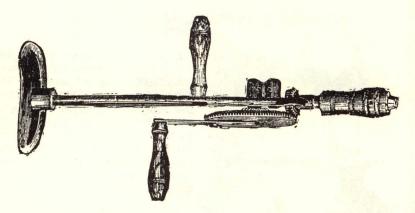
Weight, 141 pounds.

PRICE, \$15.00.



DRILL STOCK WITH CHUCK.

FOR HOLDING TWIST DRILLS AND BITS.



This is a very convenient Tool, as it will hold either Round, Square or Flat Shank Drills and Bits, from 1-16 to 1-2 inch diameter.

Price, · · ·



HAND DRILL.

82.50.

ADJUSTABLE CHUCKS.

No. 1, holds Drills 1-64 to 1-8, \$1 50 No. 2, holds Drills 1-8 to 1-4, 2 50

This price includes set of 6 Drills.

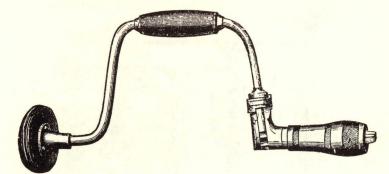
HAND DRILL STOCK.



This is a very convenient Tool, is well made with steel chuck and spindle, and has hollow handle for Drills, &c.

Price, 82.00.

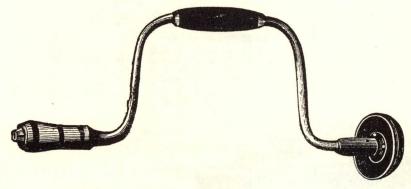
BARBER'S RATCHET BRACES.



Sweep, 8 in., \$2.50

10 in., \$2.75.

12 in., \$3.00.



Sweep, 8 in., \$2.00.

10 in., \$2.25.

12 in., \$2.50.

JENNING'S PATENT AUGER BITS.

Size, \$\frac{1}{2}\text{ in. 5-16 in. \$\frac{1}{6}\text{ in. 7-16 in. }\frac{1}{2}\text{ in. 9-16 in. }\frac{1}{6}\text{ in. 11-16 in. }\frac{1}{6}\text{ in. 13-16 in. }\frac{1}{6}\text{ in. 1 in. } \text{Price, \$0.30 .35 .40 .45 .50 .56 .63 .69 .75 .81 .88 1.00}

COMMON AUGER BITS. (BEST CAST STEEL.)

Size, ‡ in. 5-16 in. \$ in. 7-16 in. \$ in. 9-16 in. \$ in. 11-16 in. \$ in. 13-16 in. \$ in. 15-16 in 1 in. Each, \$0.20 .20 .25 .25 .25 .25 .30 .30 .35 .35 .35 .38 .40 .42

CENTER BITS.

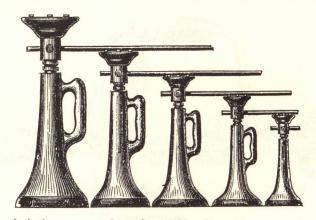
Size, $\frac{1}{2}$ in. $\frac{3}{8}$ in. $\frac{1}{2}$ in. $\frac{5}{8}$ in. $\frac{1}{2}$ in. $\frac{1}{1}$ in. $\frac{11}{2}$ in. $\frac{13}{4}$ in. $\frac{1}{2}$ in. $\frac{13}{4}$ in. $\frac{1}{2}$ in. $\frac{1}{$

SPOON BITS.

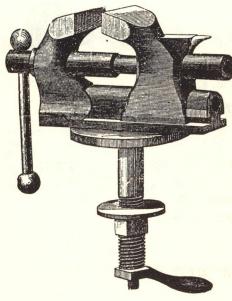
Size each, 1-16 in. to ‡ in., 15 cents. 5-16 in., 18 cents.

§ in., 20 cents.

JACK SCREWS-BELL BOTTOM.



Length, inches	6	8	10	12	14	16	20	24
Dia. Screw.				1.5				
11	2 50	3 00						
11	3 00	3 50	3 75	4 00				
18	3 25	3 75	4 00	4 50	4 75	5 90		
2							8 00	10.00
21								
$2\frac{1}{2}$							11 00	



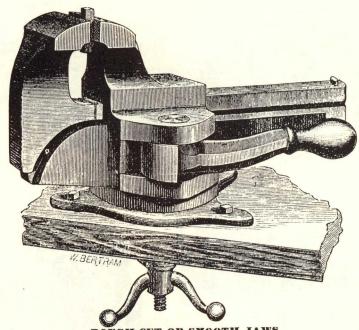
UNION AND BACKUS VISE COMBINED

(HEAVY OR CHIPPING VISE, COVERED SCREW.)

	dth of		hout Seat.	Iron S		We	eight.
1	inch.	\$3	00 E	tra, \$0	50	31	lbs.
1	4 44	3	50	0	50	5	66
2	44	4	00	0	50	9	66
2	1 "	5	50	0	75	22	66
3	44	7	00	1	00	39	66
3	2 44	0	00	1	00	47	66
4	66	10	00	1	25	56	66
4	1 46	12	50	1	50	67	"
5	44	17	00	1	75	75	6.
6	**	25	00	2	00	116	66
7	44	30	00	No S	eat	169	66

STEPHENS' PATENT PARALLEL VISE.

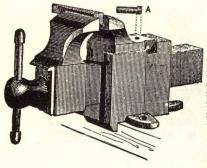
WITH SWIVEL, TAPER, TABLE AND PIPE ATTACHMENTS



ROUGH-CUT OR SMOOTH JAWS.

			Weight, Weigh	ht. Price	ce. Price.
Width of Jaw.		Opens.	Flat Vise. Swivel V		lise. Swivel Vise.
2 inches 2% " 3% " 4% " Ex 6% Ex FILERS' VI	tension Ha	2 1-4 inches 3 5 6.1/2	12 " 14 " 42 "		5 50 6 50 0 00 10 50 2 50 14 50 2 00 26 00 3 00 39 00
extra.		TAPER AT	TACHMENTS.		
2 in.	2% in.	31/2 in.	4 ½ in.	5⅓ in.	6½ in.
\$2.00	\$2.75	\$4.00	≱ 5.50	\$7.50	\$10 00
		PIPE ATT	TACHMENTS.		
2 in.	2% in.	8½ in.	4% in.	5½ in	6½ in.
\$2.00	\$2.75	\$4.00	\$5.50	\$7.50	\$10 00
	-	TABLE VISE C	LAMPS (Japanned.	.)	
2 in. Flat.		2 in. Nwivel.	2% in. Flat.		2% in. Swivel
\$1.00		\$2.00.	\$2.00	The second	\$3.00
		BRASS	VISE CAPS.		1
2 in.	2% in.	3½ in.	4 ¼ in.	5½ in.	6½ in
50 cts.	75 cts.	\$1.00	\$1.25	\$2.00	\$2.00
		. COACH or HAI	RNES MAKERS' V	ISE ATT	ACHMENT.
2 in. (2x2 in.)		2% in. (8x3 in.)	3½ in. (4x4½ in)		4½ in. (5x5½ in.
\$2.00		\$3.90	\$4 00		\$5.00.

PRENTISS PATENT ADJUSTABLE JAW VISE.

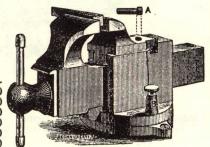


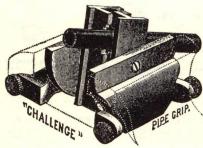
Stationary Bottom Adjustable Jaw.

Number.	Width of Jaw.	Opens.	Weight.	Price.
No. 1,	2 in.	2 in.	34 lbs.	\$4 00
No. 2,	3 in.	5 in.	26 lbs.	7 00
No. 3,	4 in.	7 in.	55 lbs.	10 50
No. 4,	5 in.	9 in.	95 lbs.	17 00
No. 5,	6 in.	10 in.	143 lbs.	24 00
No. 6,	7 in.	11 in.	185 lbs.	30 00
50V e				

Patent Swivel Bottom, Adjustable Jaw.

Number	Width of Jaw.	Opens.	Weight.	Price.
No. 18,	2 in.	2 in.	4 lbs.	\$5 50
No. 19,	3 in.	5 in.	29 lbs.	8 00
No. 20,	4 in.	7 in.	65 lbs.	12 50
No. 21,	5 in.	9 in.	108 lbs.	19 00
No. 22,	6 in.	10 in.	161 lbs.	27 00
No. 23,	7 in.	11 in.	210 lbs.	35 00

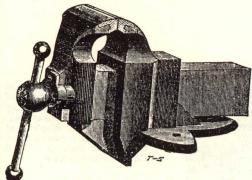




The "Challenge" (Pat. Adjustable) Pipe Grip.

Vises Nos. 2 & 19, Grips 1 to 2 in. Pipe. \$3 00 Vises Nos. 3 & 20, Grips 1 to 21 in. Pipe. 4 00 Vises Nos. 4 & 21, Grips 1 to 3 in. Pipe. 5 50 Vises Nos. 5 & 22, Grips 1 to 4 in. Pipe. 6 50

PARKER'S BENCH VISES.

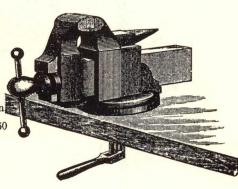


Parallel, Steel Jaws.

No. 000 1 2 3 4 5 Width of Jaw, 3½ 3½ 4½ 4¾ 5¾ 6½ in. Price each, \$6.25 7.00 9.00 11.75 16.25 24.00

SWIVEL.

No. 20 21 22 23 24
Width of Jaw, 21 31 31 41 42 in
Price each, \$5.00 7.00 8.75 11.00 14.50



Double Screw, Parallel Leg Vise.



PRICES.

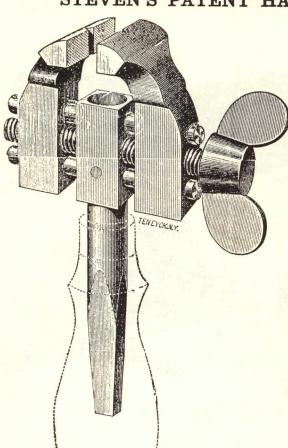
(0, 1, Jaws 3½ in. x ¾ in. Screws ½ in. diam. Lever 9 in long. Opens 4½ in \$6 00 in 2, " 4½ " x 1 " " 1½ " " 13 " " 5½ " 10 00 in 3, " 5½ " x 1½ " " 1½ " " 16 " " 6½ " 15 00 in 4, " 6½ " x 1½ " " 1½ " " 19 " " 7½ " 19 00 in 5, " 7 " x 1½ " " 13 " " 24 " " 9 " 26 00 in 6, " 8 " x 1½ " " 1½ " " 26 " " 10 " 30 00

All Sizes of these Vises furnished with Swivel Attachment, without Additional Cost.

Solid Box, Wrought Vises.

35 to 100 lbs. each. 13 cents lb.

STEVEN'S PATENT HAND VISE.



This Vise is of the best workmanship. It is made of steel. The handle, shown by the dotted lines in this engraving, is of Hard Maple, and may be easily removed when the Vise is used as a Drill Chuck or Bench Vise.

The Shank is fitted for Lathe and Bitstock, and the countersink in its upper end, with the grooves in the jaws, hold Twist Drills from \$\frac{1}{2}\$ to \$\frac{1}{2}\$ inch, firm and central.

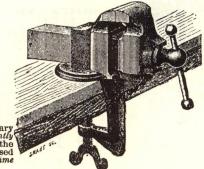
It is needed by every class of mechanics, and its many uses make it a universal tool for every one who tinkers a little for himself.

Price each, \$2.00.

SIMPSON'S BENCH VISES.

Width of Jaw.	Jaws open.	Price.
1 in.	14 in.	\$1.50
11/2 in.	134 in.	2.25
2 in.	2 in.	3.00

It is operated in the same manner as an ordinary Screw Vise; at the same time the jaws can be instantly opened or closed the full length, by one movement of the hand, without the use of the Screw (the Screw being used merely to give the grip), thus saving much valuable time that is wasted in adjusting other vises.



MOORE'S PATENT TRIPLE ACTING RATCHETS.

To satisfy the desire of some customers, we have added to our lists the above tool, in which the screw is strengthened and protected from dirt by an outside sleeve. This Drill is triple acting; the screw and ratchet are covered from dirt. We believe no other tool combines all these qualities.

PR	IC	E	L	IS	T.

No. 1	B, 12	inch	Handle	0	\$ 8	00
16 (C. 15	66	66	************************	10	50
-6	D. 18	66	46		13	00



This Drill commends itself to all practical men whose business requires a Ratchet. Its superiority consists mainly, like the wrench, in its triple movements, acting in opposite directions and centrally without removing, and its ready adaptation to both Drilling and Wrenching. It may be converted into a Wrench by removing the cap and changing the Drill Socket for a Wrench Gear of corresponding number, while the price is much below that of other first-class Drills

Both Drill and Wrench require but little space; are strong, and will not ret out of order.



PRICE LIST.

No. 1, 10 inch Handle	*No. 3½, 18 inch Handle

BOTTER RATCHETS.

		DOLLAR ETTE	
No. 1, 10 inch	Handle	8	\$5 00
" 2, 12 "	66	***************************************	6 50
" 3, 15 "	66	8	3 00



We desire to call attention to the above Wrench, acknowledged to be superior as a Ratchet to any other. The smaller sizes are especially adapted to the wants of Gas Fitters, Plumbers, and all who are engaged in putting in Steam, Gas or Water Pipe, for Ratcheting, side and corner boring, &c., &c. The larger sizes are almost indispensable to Machinists, Manufacturers, Railroad and Steamboat Companies. A nut or bolt is turned either way, without taking off the Wrench.

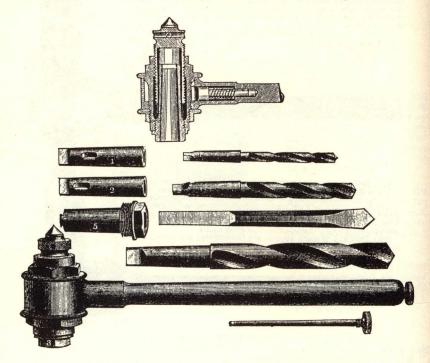
Price List of Wrenches.

No. 1, 10 inch Lever, any one Gear on the List	93	00	
No. 2, 12 inch Lever, any one	00	00	
Gear on the List	4	00	
No. 3, 15 inch Lever, any one			
Gear on the List		00	
No. 3½, 18 inch Lever, any one Gear on the List	6	00	
No. 4, 18 inch Lever, any one Gear on the List		00	





Renshaw's Ratchet Drill, No. 3.

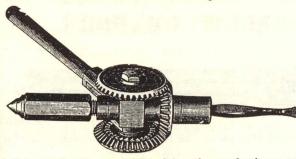


The handle, 15 inches long, is drop forged, of tough wrought iron. The spindle, of steel, has substantial ratchet teeth cut in its periphery engaging with a pawl lodged in the handle, which covers both pawl and ratchet, and protects them from dirt. The feed-screw is of steel, 3 inches long, 17-16 inches diameter, and hollow; being hardened, it is not liable to injury in ordinary use. It gives the drill large capacity in small compass, the length from top of feed-screw to bottom of drill-collet being only 5 inches. By transferring the collet and feed-screw, as arranged for right hand drilling, to opposite ends of the spindle, the ratchet may be used for left hand drilling, a feature that practical men will appreciate. Four sockets are furnished with each drill. Nos. 1, 2 and 3 correspond in size and holes of same numbers made by the Morse Drill and Machine Company, for drills \(\frac{1}{4}\), \(\frac{1}{4}\) inches diameter, with shanks of the Morse Standard Taper. Socket No. 5 is for square shank drills of any size between \(\frac{1}{4}\) inches diameter, which are the extreme sizes that this ratchet is adapted to carry. No. 3 and No. 5 Sockets are held in the spindle by screw thread; No. 1 and No. 2 Sockets have taper shanks, fitting No. 3 Socket, and can be forced out of position by turning in the feed-screw until it bears upon their end. The feed-rod, when not in use, is placed in the handle and held by screw thread. The sockets can be utilized in any drilling spindle that may be fitted to receive them.

Price, with four Collets, \$25.00.

Deductions will be made for collets, when not wanted, as follows: Nos. 2 and 3, \$1.20 each; Nos. 4 and 5, \$1.75 each.

Hutchin's Patent Adjustable Ratchet Drill.



The advantages of this drill over all others are as follows:

The handle working horizontally, it can be used the same as all other drills.

Also, the handle operating perpendicularly, and laterally, will allow the drill to be used in cramped places, where all other drills would be useless. In which ever direction the handle is moved, the

drill is continually revolving, giving the mechanic an opportunity (if so desired) to alter the movement of the handle, at will, without changing the position, or causing any delay, thereby relieving him of much fatigue.

PRICE LIST.

No. 1—12 in. handle, \$13.50. No. 2—15 in. handle, \$16.00. No. 3—18 in. handle, \$19.00.

Packer Ratchets. No. 1, 10 inch handles, \$10 50 No. 2, 12 " " 13 50 No. 3, 15 " " 16 00 No. 4, 17 " " 19 00 No. 5, 20 " " 23 00

Boiler Ratchets.

No.	1,	10	inch	handles,	\$9	00
No.	2,	12	"	46	10	50

Auger Ratchets.

No.		\$7 00	Sockets,	\$3 00 3 00
No.	2,	8 00	Screw,	3 00

IMPROVED CENTERING ATTACHMENT.

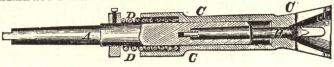


Fig. 1.



Fig. 2.

This machine is made entirely of steel, and parts duplicated by special machinery.

DESCRIPTION.—A, in the cut, represents the drill-socket arranged in the revolving spindle of a lathe in the ordinary manner. B is the bit secured in the drill-socket A. Upon the drill-socket is loosely fitted a slide sleeve, which has a funnel-shaped inner end, a, that embraces the end of the bit, as is clearly shown in Fig. 1. The sleeve can slide on the drill-socket. A spring bearing against the outer end of the sleeve holds it forward on the spindle by acting on an adjustable collar of the drill-socket. It will center iron from \(\frac{1}{4} \) inches in diameter.

Price, 86.50.

GODDARD'S

SOLID (RELIEF) REAMERS.



This Reamer is intended to meet all the objections heretofore made by machinists against this tool.

- 1st. It will not draw itself into the work, and will not chatter.
- 2d. Cannot cut under the true surface.
- 3d. Cannot be forced.
- 4th. Will always produce a perfect hole.
- 5th. It is substantially the reverse of the old tools.

Diameter of Reamer.	Full Length.	Length of Flute.	Price Each.
1-4	3 1-2 in.	1 3-4	\$1 40
5-16	4	2	1 55
3-8	4 1-2	2 1-4	1 70
7-16	5	2 1-2	1 85
1-2	5 1.2	2 3-4	2 00
9-16	6	3	2 20
5-8	6 1-2	3 1-4	2 40
11-16	7	3 1-2	2 60
3-4	7 1-2	3 3-4	2 90
13-16	8	4	3 20
7-8	8 1-2	4 1-4	3 50
15-16	9	4 1-2	3 80
1	9 1-2	4 3-4	4 10
1 1-16	10	5	4 50
1 1-8	10 1-2	5 1-4	4 90
1 3-16	11	5 1-2	5 30
1 1-4	11 1-2	5 3-4	5 70
1 5-16	12	6	6 10
1 3-8	12 1-2	6 1-4	6 50
1 7-16	13	6 1-2	7 00
1 1-2	13	6 1-2	7 50

Johnson's Hand Out Files.

WARRANTED BEST QUALITY CAST STEEL.

Full Weight, and Equal to any File in the Market.

W. Sandara I	lat,	Squa	re, R	ound	, Hali	f Ro	and a	nd M	ill Se	w F	les.	1 12	
DESCRIPTION.	To 4	41-2	5	6	7	8	9	10	11	12	13	14	16 in
Bastard Cut, Dozen Each	1 19 12	1 31	1 44	1 75	2 13 20	2 63 25	3 00	3 75 35	4 50 42	5 38 50	6 25 62	7 50 75	10 75 1 00
Becond Cut, Dozen Each	1 38	1 50 16	1 69	2 06 20	2 44 25	3 00 30	8 38 35	4 25 42	5 00 50	6 00	6 75 70	8 25 80	11 75 1 10
Dozen Each	1 69 18	1 88 20	2 06 22	2 38 25	2 88 30	3 38 33	3 88 38	4 75 45	5 75 58	6 62 67	7 50 75	9 00 85	13 00
	Han	d, Eq	ualli	ng, P	illar,	War	ding	and	Cotte	r Fil	es.		
DESCRIPTION.	To 4	4 1-2	5	6	7	8	9	10	11	12	13	14	16 in
Bastard Cut, Dozen Each	1 81	1 44 16	1 56 18	2 13 20	2 63 25	3 00	8 75 85	4 50 42	5 88 50	6 25 62	7 50 75	9 00 85	12 50 1 15
Dozen Each	1 50 16	1 69 18	1 88 20	2 44 25	3 00	3 38 35	4 25 42	5 00 50	6 00 60	6 75 70	8 25 80	9 75 92	13 75 1 25
Dozen Each	1 88 20	2 06 22	2 25 25	2 88 30	3 38 33	8 88 38	4 75 45	5 75 58	6 63 67	7 50 75	9 00 85	10 50 1 00	15 75 1 50
	1.0	T	aper	Han	d Saw	and	Pit 8	iaw F	iles.			ž .	112
		3	31-2	4	4 1-2	5	6	7	8	9	10	11	12in
	ozen	1 00	1 00	1 13 12	1 25 13	1 38	1 88 20	2 38 25	3 00 33	3 88 40	4 88 50	6 00	7 25
land Saw, D	ozen	1 50 15	1 50 15	1 63 17	1 88 20	2 13 22	2 75 28	8 88 35	4 25 42	5 25 53	6 50 65	7 75 80	9 25 95
Dit Sam JD	ozen	1 19 13	1 19	1 31 14	1 44 15	1 63 17	2 13 25	2 63 28	3 38 33	4 60 40	5 00 50	6 25 60	7 50 70
	P	aral	lel (o	r Blu	nt), R	toune	d and	Squ	are F	iles.	12		
in the second		5	6	7	8	9	10	11	12	13	14 in	4	'y
DESCRIPTION Bastard Cut, {	Dozen Each	1 75	2 13 20	2 63 25	3 00	3 75 85	4 50 42	5 38 50	6 25 62	7 50 75	9 00 85	100A =	la in
			in the fi		R	asps.			Ve X		31		
			-	6	7	8	9	10	11	12	13	14	16 in
Plat and Half Reand Sh	ound, V	Vood (Pozen Each	1 75 20	2 13 25	2 63 28	3 00 30	3 75 35	4 50 42	5 38 50	6 25 60	7 50 70	10 75 1 00
Cabinet Rasps a	7,50	, ,	Dozen Each	2 38 25	2 88 28	3 38 33	3 88 37	4 75 45	5 75 55	6 63 65	7 50 75	9 00 85	13 00 1 15
Tanged Horse.			Dozen Each		. Wind		1100	5 88 50	6 25	7 50 70	9 00 83	10 75	14 75

STUBS' FILES.

KIND.					1	nehe	es.			
		3	3 1-2	4	4 1-2	5	6	7	8	10
Hand or Pottance Files,				7,500.0	- C	2000				-
Bastard Cut	Per Dozen. Each	18	18	\$1 92 20	\$2 84 25	\$2 47 28	\$8 57 35	\$4 40 45	\$5 50 55	\$7
Smooth Cut	Each	2 06 22	22	2 47 25	3 02	3 30 35	4 40	5 50 55	6 60	88
Superfine Cut	Per Dozen.	3 02		8 57 85	4 12 40	4 40 45	5 50 55	6 60 65	8 25 75	11 (
Square Files, prices as above. Knife Files, prices as above. Half Round Files,						10				
Bastard Cut	{ Per Dozen. Each	1 92 20	25	2 75 28	3 02 30	3 30 33	4 40 45	4 95 50	5 50 55	8 9
Smooth Cut	Per Dozen.	2 20 25	2 61 28	8 02 80	3 44 35	3 85 40	4 95 50	6 05	6 60	9 5
Superfine Cut	Per Dozen.	3 02		3 85 40	4 40 45	4 95 50	6 05	7 70	8 80 85	12
Round Files,	PASSE IN THE PASSE AND ADDRESS OF THE PASSES.		00	40	30	00	00		65	1 1
Bastard Cut	Per Dozen.	1 65 15	1 79 18	1 92 20	2 20 25	2 47 25	3 02 30	3 85 40	4 95 50	7 1
Smooth Cut	Per Dozen.	2 20 22	2 47 25	2 75 28	3 02	3 30	4 40 42	5 50 55	6 60 63	9 5
Superfine Cut	Per Dozen.	3 02		3 85	4 40	4 95 50	6 60 65	8 25 75	8 80 85	12
Three-Square Files,	(D D									
Bastard Cut	Per Dozen.	1 65 16		1 92 20	2 33 25	2 75 28	3 30	4 26 40	5 77 58	
Smooth Cut	Per Dozen.	2 20 25	28	3 02	8 57 35	4 12 42				
Superfine Cut	Per Dozen.	2 20 25	2 66 28	3 02	3 57 35	4 12 42				
Warding Files,	D IV	200		H. 125	130	V2 00				
Bastard Cut	Per Dozen.	1 65	1 65	1 92 20	2 06 22	2 20 25	3 30			::::.
Smooth Cut	Per Dozen.	1 92 20	1 92 20	2 34 25	2 75 28	3 02 30	4 12 40			••••
Superfine Cut	Per Dozen. Each	3 02 30	3 02 30	3 30 35	8 85 40	4 40 45	5 50 55		:::::	
	Per Dozen.	2 47	2 75	3 02	3 30	3 57	4 95	6 05	6 60	8 8
Bastard Cut	Each Per Dozen.	25 2 75	3 02	30	33	35 4 40	50 5 50	60	65	11 0
Smooth Cut	Each	28	30	33	40	45	55	70	75	1 0
Superfine Cut	Per Dozen. Each	3 30 33	3 85 38	4 49 45	4 95 50	5 50 55	6 60	8 80 85	9 90	13 2
Slitting Files,	Don Dones	2 75	0.00	0.00	0.50	0.05	4.00	6 05	F 15	
	Per Dozen, Each	28	3 02	3 30	3 57 35	3 85	4 95 50	60	7 15	• • • • • •
Smooth Cut	Per Dozen. Each	3 30	3 57 35	3 85 40	4 25	5 25 50	5 50 55	7 15 70	8 80 85	• • • • •
Superfine Cut	Per Dozen. Each	3 85 38	4 40	5 22	5 50 55	6 05	7 42 70	9 35	1 00	• • • • •
Equalling Files,	S. 7 37	90	40	50	00	00	10	03	1 00	• • • • •
Bastard Cut	Per Dozen. Each	1 65	1 92	2 20 22	2 47	2 75	3 30	3 85	4 95	7 7
Smooth Cut	Per Dozen.	1 92	2 20 22	2 47	3 02	3 30	4 40	4 95	6 60	8 8
Superfine Cut	Per Dozen. Each	2 75 28	3 02	3 57 35	4 12 40	4 40	5 50	6 60	8 25	11 0

ROUND EDGE FILES.

These Files are cut only on the edges, which are round. Length 3 inches, thickness, from 1-32 to 1-16 in., per dozen \$1.65; each, 17 cents. " 4 " 4 " 2.75; " 30 "

STUBS' TOOLS.

FLAT NOSE PLYERS. 3 in. Price per dozen	3½ in. 4 in. \$6 95 \$6 95 55 55	4½ in. 5 in. \$6 05 \$6 60 55 60	5½ in. 6 in. \$7 15 \$9 90 65 99	\$15 40 \$22 00
ROUND NOSE PLYERS, same sizes				
LONG FLAT NOSE PLYERS, same	izes and prices as	Flat Nose.		
CUTTING NIPPERS. 3 in. Price per dozen\$11 55 Price each	8½ in. 4 in. \$11 55 \$11 55 1 05 1 05	4½ in. 5 in. \$11 55 \$11 55 1 05 1 05	5½ in. 6 in. \$12 65 \$15 40 1 15 1 40	\$20 90 \$27 50
FLAT NOSE PLYERS, with cutters of			5½ in. 6 in.	. 7 in. 8 in. 0 \$19 80 \$26 40
Price per dozen		\$11 00 \$11 00 1 00 1 00	\$11 00 \$12 10 1 00 1 1	0 180 240
CUTTING PINCERS. Price per dozen Price each	4 in. \$8 25 75	5 in. 6 in. \$8 25 \$9 90 75 90	1 05 1 20	0 \$17 33 \$19 25 0 1 58 1 85
DIAGONAL SIDE CUTTING NIPP Price per dozen Price each	ers.	3½ in. \$11 55 1 05	4 in. 4½ ir \$11 55 \$11 5 1 05 1 0	5 \$11 55 \$15 40 5 1 05 1 40
HAND SHEARS. Price per dozen	4 ln. \$8 25 75	5 in. 6 in. \$8 25 \$9 90 75 90	7 in. 8 in \$11 55 \$13 2 1 05 1 2	0 \$17 33 \$19 25 0 1 58 1 85
SCREW PLATES, notched, 4 size 8 sizes, from 1-8 to 1-4 in., \$3 23				
SCREW PLATES, notched, 4 size 6 sizes, from 1-16 to 1-8 in., \$2.2	, o bizer, nom z			
SCREW PLATES, not notched, 4 size 6 sizes, from 1-16 to 1-8 in., \$1.25	, o sizes, nom	10 10 0 10 1111, 4-11		
FIVE-SIDED BROACHES OR REA form, with a square shank for	nttilig them to	a moduca manage		
sizes of the largest ends. Size1-16 in. 3-32 in. 1-8 in Price10 .13 .17	. 5-32 in. 3-16 in	. 7-32 in. 1-4 in.	5-16 in. 3-8 in .50 .65	7-16 in. 1-2 in . .85 \$1.00
SPRING DIVIDERS, with Ivory Har	dle, 2 1-2 in., \$1.			
HAND VISES. Price per dozen	3 in \$12 10 1 20	\$13 20 \$14 3	0 \$16 50 \$22	n. 5½ in. 6 in. 00 \$26 40 \$37 40 00 2 50 3 25
HAND VISES, with Wood Handles. Price each			2½ ii \$1 3	n. 3 in. 3½ in. 35 \$1 50 \$1 62
SPRING CALIPERS. 1% Price per dozen\$18 Price each	in. 2 in. 2½ i		10. \$18.00 \$18.05 5 1.75 1.75	in. 5 in. 6 in. 00 \$18 00 \$21 00 75 1 75 2 00
SPRING DIVIDERS. 1% Price per dozen\$15 Price each1	in. 2 in. 2½ i 00 \$15 00 \$15 0 40 1 40 1	00 \$15 00 \$15 00	0 1 40 114	
HACK SAWS AND FRAMES, for s in., \$2.50; 8 in., \$2.75; 10 in., \$	0.00 , 12 11., 40.00	•		
SAW BLADES, for sawing Iron, Ste Size	el or Brass, to fit: in. 6 in. 7 in. 92 \$2 20 \$2 75 20 25 30	above frames. 8 in. 9 in. 10 i \$3 30 \$3 85 \$4	in. 11 in. 12 in. 40 \$4 95 \$5 5	n. 18 in. 14 in. 50 \$6 05 \$6 60 55 60 65

Stubs' Drill Wire and Tool Steel.

FOR MAKING SMALL DRILLS, TAPS, REAMERS, ETC.

Stubs' Polished Steel Wire.

12 inch pieces. (70 sizes, from 1-50 to 1-2 inch diameter.)

Sizes by Stubs' Steel Wire Gauge.

Sizes. Z to A. Price per lb \$1.00	1 to 15.	16 to 30.	31 to 38.	39 to 46.	47 to 50.	51 to 54.
	\$1.00	\$1.10	\$1.20	\$1.40	\$1.60	\$2.00
Sizes. 55 to 57. Price per 1b \$2.40	58 to 60. \$2.80	61 to 62.	63 to 65.	66 to 68.	69 to 70.	

Stubs' Polished Square Steel.

(12 inch pieces.)

Sizes. 1-10 to 1-4 by 324, 1-4, 5-16, 3-8, 7-16, 1-2 inch. Per lb., \$1.60.

Stubs' Polished Steel Wire.

(In Straight Rods, 1 foot long, for making Taps, Drills, etc.)

Size.	1-16.	3-32.	1-8.	5-32.	3-16.	7-32.	1-4.	5-16.	3-8.	7-16	1-2	inch
Round, price per foot.	.05	.07	.10	.13	.17	.22	.25	.38	.50	.70	.87	******
Square, price per foot.	.05	.08	.15	.20	.30	.35	.45	.70 \$	1.10 8	\$1.50	\$2.00	

E Stubs' Hammered Tool Steel.

In 5 foot Bars.		•		1-8 .50	3-16 .50.	1·4 .50	5-16 to 1 inch.
	Octagon, 3-8 to 1 inch,	-	-	•			40 cts. per lb.
	Flat, 1-16x1-4. Per fb .60		1-8x	1-4, 3- .50	8, 1-2.	1	-4x1-2, 5-8, 3-4.
SHEET STEEL, Price per	12 in. wide,	fre		o. 12 i	to 22,		23 to 34. to 65 cts.

Steel Piano Wire.

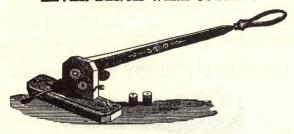
FOR SPIRAL SPRINGS.

This Wire is made by a peculiar process, which renders it very tough and springy. It does not require to be tempered, as it has a perfect spring temper, and is ready for use as soon as it is wound. It comes in hanks, weighing 1 pound each; price, \$1.25. We have the following sizes by the English Wire Gauge: Nos. 14, 16, 17, 18, 19, 20, 21, 22, 23, 24.

Sanderson's Tool Steel.

Square and octagon, 3-8 to 2 inches,	-	-	-		-	-	-	22 cts. per lb.
BEST AMERICAN TOOL STEEL, -	-	-		-	-	-		18 cts. per lb.
MACHINERY STEEL,	-	-						13 cts. per b.

LEVER BENCH WIRE CUTTER.



The above Cut represents a very handy Tool for any one having a great deal of wire to cut up into small pieces. It has an adjustable Gauge, so that any number of pieces can be cut the same length without having to measure each piece, and does the work very rapidly. It will cut any size wire not larger than three-sixteenths inch. Price, \$5.

CHEAP LATHE CHUCK.



Will hold from 1 inch down. The Shank is 21 inch long and 1 inch diameter, so that it can be easily turned down to fit any lathe. Price, \$1.50.

SCREW CHASERS.



Screw Chasers for cutting Screws in the lathe by hand. We have the following Threads: 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36, 40, 48 to the inch. Price per pair, 75 cents. Sent free by mail.

FILE CARD,



OR WIRE BRUSH, for cleaning Files. 15 cents each; \$1.50 per dozen. Sent free by mail on receipt of price.

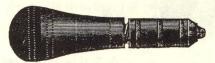
TAPER FLUTED REAMERS.



Diameter of Large End	8 in. 3 in.	9-16 in. \$\frac{2}{3}\text{ in.} \$\frac{1}{2}\text{ in.} \$\frac{1}{3}\text{ in.}	§ in. ½ in. 3½ in. \$2.15	11-16 in. 9-16 in. 8½ in. \$2.80	\$\frac{1}{2} \text{ in.} \$\frac{1}{2} \text{ in.} \$\frac{1}{2} \text{ in.} \$\frac{1}{2} \text{ constant} \$\frac{1}{2} c
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FILE HANDLES.

ADJUSTABLE FILE AND TOOL HANDLE.



Will hold anything from a small brad-awl to a ten inch file. Sent free by mail for 40 cents.

STEEL SCRATCH GAUGE,



Bar 5 inches long, § inch diameter. 75 cents each. Sent free by mail on receipt of price.

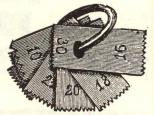
SURFACE GAUGES.

 Height.........
 6 in.
 9 in.
 12 in.
 18 in.

 Price each.......
 \$2.25
 3.50
 7.00
 10.00

THREAD GAUGES.

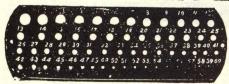




THREAD GAUGES, for counting the number of threads to the inch on Screws and Taps. Rubber Handle, \$1 each.
All Steel, 75 cents each.

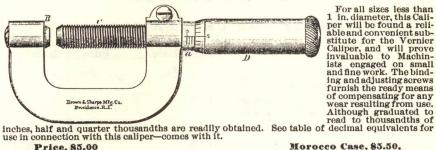
On Key Ring, 50 cents each.

TWIST DRILL GAUGE.



A Steel Plate drilled with 60 holes to correspond with the different sizes of small Twist Drills. This is a very necessary tool for any one who uses small drills, and is also very handy for gauging wire and other purposes. Price, \$1.50. Sent free by mail.

Micrometer Caliper.

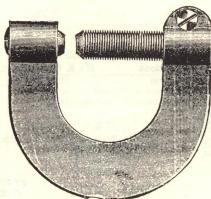


For all sizes less than in. diameter, this Caliper will be found a reliper will be found a reli-able and convenient sub-stitute for the Vernier Caliper, and will prove invaluable to Machin-ists engaged on small and fine work. The bind-ing and adjusting screws furnish the ready means of compressiting for any of compensating for any wear resulting from use.

Price, \$5.00

Morocco Case, \$5.50.

The "Victor" Micrometer Caliper.



This attractive and very desirable tool will be found more reliable and convenient than the Vernier Caliper, and to Machinists and Tool Makers it is indispensable on work requiring very accurate and close measurement. Its capacity is one inch, and is graduated to one-thousandths, but can be set one-half and quarter-thousandths; and is so constructed that any wear resulting from use can be readily adjusted.

Price, \$5.00.

Morocco Case, \$6.00.

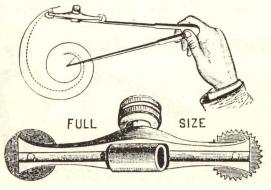
This simple instrument is something entirely new, and one of the most useful and practical inventions ever brought before the public.

It is of special interest to Engineers, Draughtsmen, Builders, Painters. Ship Carpenters, Pattern Makers, Carvers, Engravers, Carpenters and Joiners, Leather Workers, Cabinet and Carriage Makers, Ornamental Stone Cutters, etc.

It is a simple device, which can be attached to an ordinary pair of Compasses, and will produce the most beautiful Curves, scrolls, etc., enabling the unskilled workman to successfully compete, in beauty of design, with the most expert.

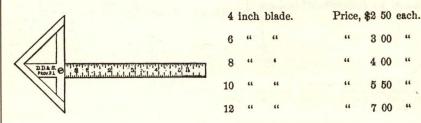
Single Scribe......\$1 50 Single "with Compasses. 2 00

The Curve Scribe.



MACHINISTS' TOOLS.

UNIVERSAL OR CENTER SQUARES.



STANDARD STEEL RULES.

1 inch.	2 inch.	3 inch.	4 inch.	6 inch.	9 inch. \$1 50.
12 inch.	18 inch.		36 inch. \$8 00.	48 inch. \$12 00.	
The ru	les in this list a	re divided five v			llows:
	aduations.		. Graduations.		3. Graduations.
1st cor. 10 2d cor. 12, 3d cor. 16, 4th cor. 14,	32, 64	12 16	, 20, 50, 100 2, 24, 48 3, 82, 64		16, 32, 64 16 16 8
1st c 2d c 3d c 4th c	aduations. or. 64, or. 32, or. 16, cor. 8,			1st cor. 3 2d cor. 46 3d cor. 50 4th cor. 6) " 1 "
12 inch. ste 24 inch. "	eel Rule of No	. 5 graduation,			\$3 00

No. 5 Graduations.

1st cor. 16, 32, 64 2d cor. 11, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25 3d cor. 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38 4th cor. 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 100

HARDENED CAST STEEL

T SQUARE AND UNIVERSAL BEVEL.



The head is five inches, and the tongue eight inches long. Both parts are hardened, and ground straight and square. The tongue may be used at the extreme end of the beam. The wide side of the three cornered washer should always be placed next to the blade.



PLUMB BOBS

5 50

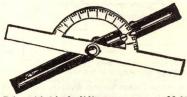
7 00

	Bronze, with Screw Cap and Steel	
	Point\$2	50
1	Bronze, without Screw Cap 2	00
-	Iron, without Screw Cap	75
	Weight about eight ounces.	

Machinists' Tools.

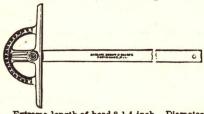
BEVEL PROTRACTOR

with sliding arm, and half circle divided to degrees.



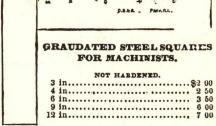
Price with 6 inch sliding arm......\$6 50 Price with 10 inch sliding arm..... 7 00

DRAUGHTSMEN'S T SQUARES.

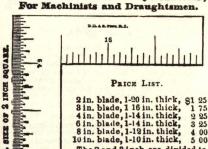


Extreme length of head 8 1-4 inch. Diameter of arc 4½ inch. Divided to half degrees. Blade 1 1-4 inch wide, 3-64 inch thick. The heads are made of bronze, and the blades (f steel. Price, with 36 inch blade, \$14 00

<u>ontoninini hidoali talataki kiki kiri kirki dankalah kirki kiri</u> D.B.& S. Prov.R.L Pat Ext'd Patent Hardened Cast Steel Try Squares for Machinists. 1½ in.... \$2 00 3 in.... 3 00 4½ in.... 4 00 6 in.... 5 00 9 in... 8 00 15 in......\$15 00 18 in......20 00 24 in......80 00 30 in.... 40 00 86 in..... 50 00 in..... 12 00



THIN STEEL SQUARES,



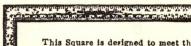
The 2 and 3 inch are divided to 16ths and 64ths on one side, and 82ds and 64ths on the other.

The 4, 6, 8 and 10 inch Squares are divided on both sides to 16ths and 32ds of inches.

STEEL SQUARES

FOR MILLWRIGHTS.

PRICE \$9 00.

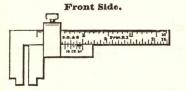


This Square is designed to meet the wants of parties desiring a more accurate tool than the ordinary carpenter's square.

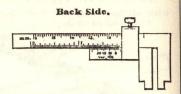
Longest blade 24 in. long, 2 in. wide. Shortest blade 18 in. long, 1 1/2 in. wide.

Both blades are 3-16 inch thick at the corner where they unite, and taper down to 1-16 inch at their ends. Both sides are divided to 8ths, 16ths, 32ds and 54ths of inches.

HARDENED CAST STEEL KET VERNIER CALIPERS.



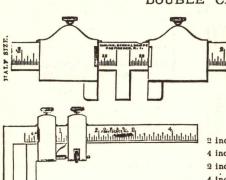
SIZIG



Price \$5 00. In Morocco Case \$6 00.

The above cuts are fac similes of the front and back sides of the Pocket Vernier Caliper. The jaws are hardened and ground. The front side is divided on the lower edge to inches and sixteenths, but arranged to read by means of an indicating scale to thirty-seconds and sixty-fourths, and the upper edge to fiftieths of inches reading from the left hand edge of sliding head. On the back side, the lower edge is divided to fortieths of inches, but arranged to read by means of a vernier on the sliding head, to thousands of inches, and the upper edge to millimetres, French measure, reading from the right hand edge of sliding head and figured to centimetres.

DOUBLE CALIPERS.



Price, \$14 00.

Whole length, 7-12 in., and will caliper 3 1-2x 4 1-2 in. Weighs but four ounces, and can be readily carried in the pocket. Very useful for machinists and others for selecting iron and steel, as both the width and thickness of flat bars can be tested at once. A larger size with heavier bar and wood-en handle, is made for use in rolling or forging iron or steel. Extreme length, including handle, 12in., and will caliper 81-2x11-9in. Pricr, \$34.

CALIPER SQUARES.

2	inch	with	out adjust	ing scre	w		 €3	50	
4	inch	66	66	"	• • • • •	• • • • • •	 4	50	
2	inch	with	adjusting	screw,	like cu	t	 4	25	
4	inch	66	66	"	66		 5	50	

COMBINED GAUGE AND CALIPER.

58.48. Pm R.I աննահահահանահահահանահանահան relationalist

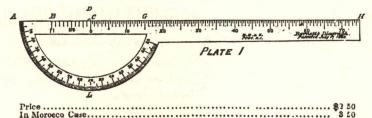
Price, \$5 00.

This tool combines Dividers, inside and outside Calipers, and a graduated Double Scratch Gauge. It will caliper a round bar two inches in diameter. The beam is twelve inches long, one-half inch wie, three-sighths inch thick and is graduated to six eenths, thirty-seconds and sixty-fourths of an inch.

This cut is a fac simile of one side of these Rules. The other side is divided to twelfths, twenty-fourths, forty-eighths, eighths, fourteenths and twenty-eighths on the outside, and upon the slide to thirty-seconds and sixty-fourths of inches. When closed they are three inches long. The Caliper can be drawn out to measure two and a halfinches. The thickness of the rule is one-eighth of an inon.

These Rules are divided in four ways. A. divided on outside like cut, on slide to thirty-seconds and sixty-fourths. B, divided on outside like cut, on slide to the try-seconds and sixty-fourths, and hundredths. C, divided on outside to eighteenths, sixteenths, thirty-seconds and sixty-fourths and hundredths. C, divided on outside to eighteenths, sixteenths, thirty-seconds and sixty-fourths and divided on outside to eighths, sixteenths, thirty-seconds and sixty-fourths; on slide to sixty-fourths and one hundredths. Others are divided for Button Gauges, on the outside to sixteenths, twentieths, thirty-seconds and fortieths, and on slide to fortieths and eightieths of inches. Price, \$4 00.

THE DIAGRAPH.



The Diagraph is a new and valuable invention for drawing diagrams and platting surveys, by which the rapidity of platting is increased fourfold. With the addition of compasses for circles, it will be found an improvement upon an entire box of ordinary surveyor's instruments, doing the same work with greater accuracy and facility. Professors and teachers will find it well adapted for instruction in drawing and platting. The diameter of the circle 4 inches, and the whole length of the instrument 9% inches. It is platting. The diameter made of German silver.

STANDARD STEEL RULES, French Measure.

1 20 Metre. 1-10 M. 1-5 M. 3-10 M. 1-2 M. 1 M. 40 cts. 75 cts. \$1.50 \$2.00 \$3.50 \$9.00 \$1.50

SQUARE STEEL RULES.

6 inch. 3 inch. 4 inch. 85 cts. 40 cts. 60 cts.

GRADUATIONS.

8, 16, 32, 64 15, 32, 64, 100 16, 64, 50, 100 64 to the inch whole length.

TRIANGULAR STEEL RULES.

interpretation of secondary of interpretations

6 inch. 13 inch. 3 inch. 4 inch. \$1.00 \$3.00 75 cts. 50 cts. GRADUATIONS.

13, 64, 100 to the inch whole length.
14, 82, 64
20, 50, 100,-12,24,48,-16, 32,64 to the inch.

The 12 in. are divided only as follows: 8, 10, 12, 14, 16, 20, 24, 28, 48, 50, 64, 100 to the inch.

STANDARD STEEL STRAIGHT EDGES.

Of same width and thickness as Standard Rules.

6	in. los	ng. 1		in, wie	le, 1-10 i	n. th	ick	8	70
9	66		1-8		1-10	66	*** ****		90
12		1	1-4	- 66	1-10	- 66	********	1	20
13		1	1-2	66	1-8	66		1	80
24	66	2	-	66	1-8	66		2	50
33	66	2	38	66	1.8	66		5	00
48	- 44	3		44	1-8	"	•••••		00

TRIANGULAR BOXWOOD SCALES.



Nos. 63, 64 and 65, for Architects and Mechanical Draughtsmen.

PRICE LIST

Prices.		
\$5 00	divided to scales of %, %, %, %, %, 1, 1%, 3, 2 and 4 in. to the i	,
	Prices. \$5 00	\$5 00 24 inch. Triangular Box wood Rule

2 00 12 inch. Triangular Boxwood Rule, ditto, with 3-16 and 3-32 instead of 2 and 4 in. to the ft.

65 1 50 6 inch. Triangular Boxwood Rule,

ditto.
inch. Triangular Boxwood Rule, 72 5 00 24 inch. on one edge to 10ths, 20ths, 30ths, 40ths, 50ths, 60ths of an inch.
2 00 12 inch. Triangular Boxwood Rule, 73

ditto. 6 inch. Triangular Boxwood Rule, 75 1 50

ditto. Nos. 72 and 73 are divided either 10 to 60 or 20 to 8).

BEVELED STEEL STRAIGHT FDGFS

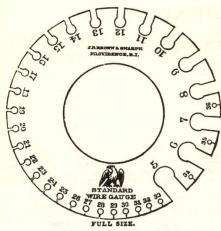
				•		 	
12	in. long,	1%	in. wide,	3-16	in. thick	 8 2	50
13	**	1%	16	8-16	66		CO
21	66	2	66	3-16	16	 4	CO
3;	"	3	16	1-4	46	 9	(0
48	64	3	66	1-4	66	1.0	00

The beveled edges are 1-16 in. thick. Only one edge is beveled.

HARDENED STEEL STRAIGHT EDGES.

5 1/2 1	n. lon	K. 116	in. wi	de, 1-12 i	n. thi	ck §	3 1	CO
7	66	1%	46	1-12	66		1	25
10%	64	1%	66	1-12	**		2	00
11	66	2	66	1-12	46	••••		CO
17	66	21	66	1-12	66			50
20	66	2 %	66	1-10	66			50
27	.6	3	66	1-10	66		7	00
33	66	3	66	1-10	66	****	9	CO
39	66	316	66	1-8	66		12	CO
CT33			77.3					

These Straight Edges are the tongues of the Hardened Cast Steel Try Squares, and are hardened on the edges only.



THE

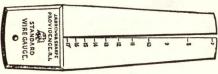
Adopted by the Brass Manufacturers, Jan., 1858.

These Gauges are made from the best steel, and are tempered, adjusted, and warranted accurate.

None genuine unless stamped as in the engraving with trade marks.

PRICES.

Round	Gauges,	sizcs,	0	to	86	\$6	00
4	6	46	5	to	86	4	00

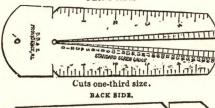


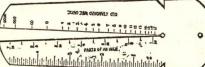
ONE-THIRD SIZE.

000 to 9	\$8 00	15 to 28	\$ 8	00
7 to 17	8 00	25 to 40	8	00
Divided with	both	Old and New		
Standard			12	00

Large Screw and Wire Gauge.

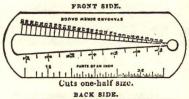
PRICE \$3.00 EXTRA THICK, \$4.25.

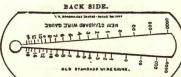




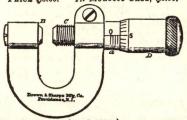
Most of the smaller machinists' tools can be sent by mail from 1 to 12 cts. each postage.

ANGULAR WIRE GAUGES. | Pocket Screw and Wire Gauge. PRICE, - - - \$2.50.





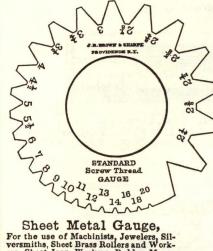
Pocket Sheet Metal Gauge. PRICE \$6.00. IN MOROCCO CASE, \$6.50.



(FULL SIZE.)

These Gauges will measure the thickness of sheet metal or other material, by thousandths of an inch up to three-tenths of an inch at any point within half an inch of the edge, and can be applied as easily as the common gauge. It will also answer to measure the diameter of wire. Means of adjustment are provided in case of wear by continued use.

STANDARD GAUGES.



Sheet Metal Gauge,

For the use of Machinists, Jewelers, Silversmiths, Sheet Brass Rollers and Workers, Sheet Iron Workers, Rubber Manufacturers, Paper Makers, Type Founders, &c. Price \$20.00.

STANDARD SCREW THREAD GAUGE. Price \$5.00. Full Size.

This Gauge is intended to be used as a standard for

This Gauge is intended to be used as a standard for grinding tools to cut threads according to the new system recommended for adoption by the Franklin Institute of Philadelphia.

The angles are 60 degrees, and the flat surfaces at top and bottom of threads are equal to one-eighth of the pitch. Tables for screw threads, bolts and nuts, are furnished with the gauge.

CENTRE GAUGE.

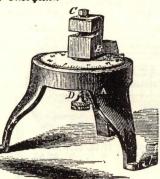
AND GAUGE FOR GRINDING AND SETTING SCREW TOOLS. Half Size. Price 40 Cents.

The angles used in this approprint gauge are 60 degrees. The four divisions upon the gauge of 14, 20, 24 and 32 parts to the inch, are very parts to the inch, are very manufactural was to the inch of taps and screws. The following parts to the inch of taps and screws. The following parts to the inch can be determined by them, viz: 2, 3, 4, 5, 5, 7, 8, 10, 12, 14, 16, 20, 24 and 32.

Also on hand Centre Gauges of the Whitworth cr English standard, 55 degrees.

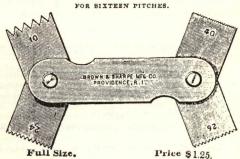
English standard, 55 degrees.

SCREW PITCH GAUGE.





One-Third Size.



Price \$6.00.

NUT AND WASHER GAUGE.

For measuring diameter, and thickness also holes of nuts and washers.

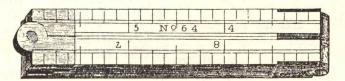
43, 34 1 21 34 14

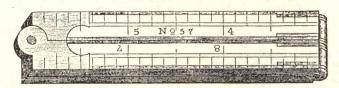
The figures upon one edge are for 16ths and 32nds, and on the other for 10ths and 20ths of inches.

Also U. S. Standard sizes for holes to tap for bolts. Opposite side is graduated the same as a steel rule to 32nds of inches.

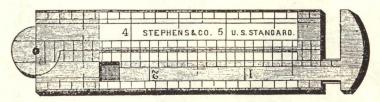
BOXWOOD AND IVORY RULES.

One and Two Feet Long.





Boxwood Rules, like cut, Brass bound, 1 foot long, 75 cts. 2 feet, \$1.00 each. Ivory Rules, bound with German Silver, 1 foot long, \$2.25. 2 feet long, \$5.00 each.

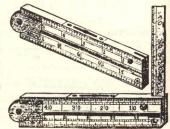


Boxwood Caliper Rules, like above cut, 6 in, long, 50 cts.

Ivory " " " " " \$1.25. " " \$2.50 "

PATENT COMBINATION RULE.

Boxwood, One Foot, Two Fold, Bound with Brass. This is the most convenient and useful pocket-rule ever made; it combines in itself a Carpenter's Rule, a Spirit Level, Square, Plumb, Bevel, Indicator, Brace-Scale, Draughting Scale, T Square, Right-Angle Triangle, Protector, and with a straight edge it can be used as a Parallel Ruler.



Price. - - - \$3.00.

IRON LEVELS.



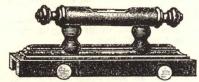


DAVIS'S PATENT ADJUSTABLE PLUMB AND LEVEL.

These Levels are made of Cast Iron and planed perfectly true and their construction is such that they can be used to get any angle, as well as being a perfect Plumb and Level. Every Level warranted perfect.

Length 6 in 12 in 18 in 24 in. Price each \$2.50 \$4.00 \$5.00 \$5.50.

MACHINISTS' IRON BENCH LEVEL, FOR SQUARE OR STRAIGHT EDGE. NEW DESIGN.



3 inch.

This Level is so arranged that it may be attached to a Square and be used as a Level and Plumb, or, if extra length is needed for leveling purposes, it can be applied to a Straight Edge, making it a Level of any desired length. It is well and accurately made, and will be highly appreciated by Machinists and other Mechanics,

HATHWAYS' COMBINATION GAUGE.

NEW AND USEFUL INSTRUMENT, FOR MACHINISTS, TOOL MAKERS, MODEL MAKERS, DIE SINKERS, DRAUGHTSMEN AND OTHERS.

The various uses to which this little instrument can be applied, place it, in the estimation of all who have used it, as one of the most useful tools known to mechanics.

This cut represents a Surface Guage, capable of being set with the greatest accuracy, and being strong, is not liable to spring or change from its position. In this form it can also be used to find the center of pieces of Lathe Work. Place the Guage upon a surface plate, bring the piece to be centered in contact with the scratch, and the centre will be accurately determined, thus saving the trouble of revolving the piece upon centers. By reversing the pointer it becomes a Scratch Guage, perfect in every respect—light, yet strong—capable of lining every description of work with the utmost nicety. Hence, it is invaluable to Engravers on Wood or Copper, in laying out borders, &c. For the use of Tool Makers and Die Sinkers it will become really indispensable, being so much superior to the old fashioned fathom, which every one knows is so liable to change, while this "Hathaway Guage," when once set, cannot be altered

in any of its positions, except by loosening the set screw. They are manufactured in the best possible manner, and carefully Case Hardened. The pointers are made of Stubbs' refined steel wire, and tempered; and it is confidently believed by the inventors that, from their own experience in the use of them, this Guage will supply a want long felt by all Mechanics.

MEASURING

Patent Leather Cases, Ass Skin Cases,	Price each,	25 .60 .60		\$1.00 .75	75 1.25 1.00	100 1.50	ft.
METALLIC, in Leather Cases,	Length, Price each,	25 \$2.00	40 2.50	50 2.75	66 3.25	75 3.75	100 ft. 4.50
CHESTERMAN'S STEEL, in Leather Cases,	Length, Price each,		50 8.00		75 12.00	100 15 00	ft.
CHESTERMAN'S STEEL, in Gr. Silver Cases, Spring Stop,	Length, Price each,	\$1.50	$\begin{array}{c} 6 \\ 2.25 \end{array}$	9 2.75	12 ft 3.75		
PAINE'S Standard Steel Tapes,	Length, Price each,	\$6.00		66 10.50		100 f 15.00	t.
STEEL-SPRING TAPES, Nickel-Plated Cases,	Length, Price each,	3 \$1.50		5 2.00	6 2.25	8 275	12 ft. 3.75

PLUMB BOBS.

BRASS, with Steel Points and Cap to unscrew; small, \$1.75; medium, \$2.00; large, \$2.25. BRASS, with Steel Points; small, \$1.25; medium, \$1.50; large, \$1.75.

BRASS, with Steel Points; small, \$1.25; medium, \$1.30; large, \$1.75.

LEAD PLUMB BOBS; small, \$3 cents; large, 42 cents.

COMMON IRON PLUMB BOBS, 12 cents each. Extra heavy, 50 cents each.

GRASS LINES, to use with Plumb Bobs, or for lining up shafting; price per hank of 30 feet, 20 cents; per dozen hanks, \$2.00.

DRAWING INSTRUMENTS (In Cases.)

We have constantly on hand an assortment of Drawing Instruments, in cases, at prices varying from \$1.00 to \$30.00 per set. Below we give the contents of a few of the

styles:

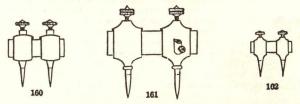
FOUR DOLLAR set of Brass Instruments contains 1 pair 6 in. Dividers, with Pen and Pencil Points and Lengthening Bar; 1 pair 41 in. Plain Dividers; 1 pair 4 in. Dividers with Pen and Pencil Point; 1 pair 4 in. Needle-point Dividers, with Pen and Pencil Point; 1 Drawing Pen; 1 Rule; 1 Brass and 1 Horn Protractor; Rosewood Case, with lock and key.

EIGHT DOLLAR set of Brass Instruments contains 1 pair proportional Dividers, 6 in.; 1 pair Needle-point Dividers, 6½ in., with Pen and Pencil Point and Lengthening Bar; 1 pair 5 in. Plain Dividers; 1 pair 4 in. Needle-point Dividers, with Pen and Pencil Point; 1 Bow Pen; 1 Drawing Pen; 1 Horn Protractor, 6 in.; 1 Rule; 2 Triangles; 1 Scroll: Rosewood Case, with lock and key.

TEN DOLLAR set contains the same as the eight dollar; but the Instruments are

of German Silver instead of Brass.

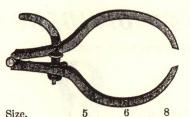
TRAMMEL POINTS.



BRASS Trammel Points, to put on a Wooden Bar for striking Large Circles. Small size, \$1.00 per pair, to fit a bar 5-16x7-16 inch.

Fig. 162 Medium size, \$1.75 per pair, to fit a bar 1-4x3-4 inch. 160 " 161 Large size, \$2.25 per pair, to fit a bar 7-16x1 inch.

The medium and large sizes have an attachment for holding a lead pencil.



POLISHED CAST STEEL

WING CALIPERS.

(Best Quality.)

Size, Dozen,	\$5.25				11.50	15 18.50		36.00	
Each	.50	.60	.75	.92		1.75	2.75	3.50	4.00

POLISHED CAST STEEL

Wing Dividers.

(Best Quality.)

Size,	5	6	7	8	10	12	15	18	24 in.
Dozen,	\$3.50	3.75	4.50	5 50	7.00	8.00	14.00	20.00	30.00
Each,	.40	.45	.50	.60	.75	1.00	1.38	2.00	3.00



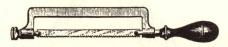
Double Calipers.

21 in. \$0.35	3 in.	4 in.	6 in
\$0.35	.40	.45	.60

Call's Patent Inside Calipers.

4 in., 75 cts. each. 6 in., 88 cts. each.

Improved Adjustable Hack Saw Frame.



By a novel device the saw can be held fast and turned at any angle. Malleable iron frame (Japanned) with Stubb's or Diston's Blades, complete.

Price each, 6 in., \$1.00. 8 in., \$1.25. 10 in., \$1.50.

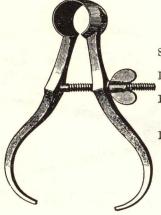


Adjustable Double Hack Saw Frame with Stubb's or Diston's Blades.

Price each, 8 in., \$1.60. 10 in., \$2.

SPRING CALIPERS AND DIVIDERS.

Extra Fine Steel and Temper.

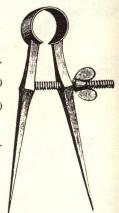


Size, 2 in. 2½ in. 3 in. 4 in. 5 in.

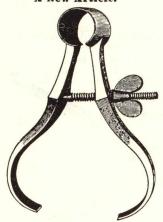
Doz. \$11.50 11.50 11.50 14.50 15.50

Each, \$1.00 1.00 1.00 1.25 1.30

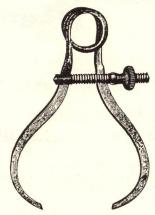
Dividers same price as Calipers.



SPRING SCREW CALIPER. PATENT HELICAL COIL SPRING CALIPER



3 5	in.	each,	\$1.00 1.25	Doz.,	\$11.50 15.00
5	**	"	1.25		15.00

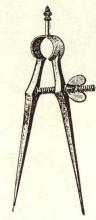


1	in.	each,	\$0.75	Doz.,	\$8.00
11	66	**	.75	"	8.00
$\frac{1\frac{1}{2}}{2}$	66	66	.75	44	8.00
	66	46	.75	66	8.00
$\frac{2\frac{1}{4}}{3}$	46	66	.75	46	8.00
4	66	"	.95	66	10.00
5	66	46	1.00	"	10.00

German Calipers and Dividers at Lower Prices.

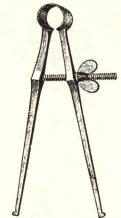
SPRING DIVIDERS INSIDE SPRING CALIPER.

With Thumb Attachment.



		•
	2 in.	3½ in.
Price per dozen,	\$13.75	\$13,75

Price each,

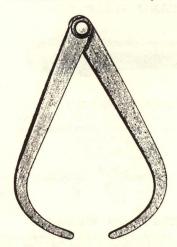


5 in. 5 in. 5 in. 17.50 Price per dozen, - - \$15.00 Price each, - - - 1.30

Firm Joint Out or Inside Caliper.

11.5

1.15



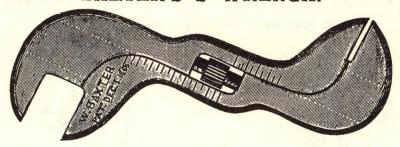
6 inch, Outside, per dozen, \$7.50; each, .70 6 inch, Inside, per dozen, \$7.50; each, .70

Reliable Inside Right and Left Hand Screw Caliper.



5 inch, per dozen, \$15.00; each, \$1.25.

BAXTER'S S WRENCH.



BAXTER'S DIAGONAL WRENCH.



NEW PRICE LIST

4	inch.	per do	zen	-	-	-		-	\$ 6 00	10	inch, per dozen		-	-	-	-	-	\$18 00
6	66	**	-	-	-	-	-	-	9 00	12		-	-		-	-	-	24 00
8	66			-	-	-	-	-	12 00	1	6							800000

"MERRICK'S PATTERN" SCREW WRENCHES.



BRIGHT. 8 in., \$11.00; 10 in., \$14.00; 12 in., \$16.00; 15 in., \$26.00; 18 in., \$32.00.

This Wrench is made from the best of Wrought Iron, thoroughly case-hardened, and for quality and finish is excelled by no other wrench in market.

COE'S WRENCHES.

	BRIGHT. Sin. per dozen, \$10 00 15 in. per dozen, \$26											1					BLA	CK.					
(Sin	. D	er	dozen	,\$10	00	15	in.	per	dozen,	\$26 0	0 6	in.	per	dozen,	\$ 9	00	15	in.	per	dozer	, \$24 00	
8	8 .			46	11	00	18	**			32 0	8 0			**	10	00	18		***	46	30 00	
10) "			66	14	00	21	66	66	66	88 0	0 j 10	66	44	66	12	00	21	**		66	36 00	
19				66	16	00						12		66	66	14	00					23 00	

BOARDMAN'S PATENT COMBINATION WRENCH.

This Combination comprises six useful Tools, neatly and compactly arranged in a convenient form for practical use. The Tools are: Screw Wrench, Pipe or Rod Wrench, Hammer, Nail Claw, Screw Driver, Bib Handle or Socket Wrench,

8 in. Bright, -	-	-	-	-	-	-	\$20 00 per dozen.
6 in. Nickel Plated,	-	-	-	-	- 50	-	16 00
6 in. Bright, -	-		-	-	-	-	12 00 "

BILLINGS' ADJUSTABLE POCKET WRENCH.



DROP-FORGED FROM NORWAY IRON AND BAR STEEL.

Finished in a Thorough Manner and Case Hardened.

Price per dozen, \$9.00.

Single Wrenches, 80 cents.

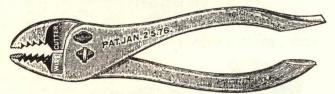
The Barwick Wrench.



PRICE LIST.

				d, takes fro							inch	pipe	\$2	00
46	1	Finished	land	Polished,	take	s fro	m (Gas B	urn	er to		16		50
66	2	Ground	and	Finished,	44	66	1	inch	to	11		4	4	00
46	3	44	46	4.	66	46	1	66	66	2	1	6	5	00
66	41	46	66	"	"	"	2	66	66	31		6	10	00

PEASE'S COMBINATION PLYERS.



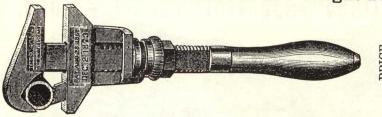
SOMETHING NEW.

GAS PLYERS, WIRE CUTTERS, WRENCH AND SCREW DRIVER COMBINED.

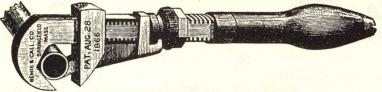
The above Cut represents the Plyers one half size.

Price, Nickel Plated, \$15.00 per dozen,

COMBINATION WRENCHES. Bright Finish.



CYLINDER OR GAS PIPE WRENOHES.



WARRANTED STEEL HEAD AND JAW.

With Wrought Iron Bar, Case-hardened throughout. Parts Interchangeable.

BRIGHT, with Short Nut.

10	inch,	adjustable	to pipe	from	1/2	inch	to	1	inch	in	diam.,	per doz.	\$19	00	Each	\$1	75
12	"	66	"	44	1	46	66	19	- 66	66	"	- 66	22	00	"	2	00
15	66	66	"	"	į	66	"	2	46	46	60	66	31		44		75
18	"	46	"			46						"	48	00			25

WEBSTER'S PATENT COMBINED WRENCH AND PIPE CUTTER.



12 in.	Wrench	cuts and scre	ws from	in. to in. diam.	Price, \$3 50 each.
15 "	66	66	44	1 in. to 11 in. "	" 4 25 "
18 "	46	"		k in. to 2 in. "	" 5 00 "
21 "	"	46		1 in. to 21 in. "	" 6 00 "

STILLSON'S PATENT CYLINDER WRENCH.



Size,	6	8	10	14	18 inch.
Size, Takes pipe	to d	1 to 1	1 to 1	1 to 11	1 to 2 "
Price each,	\$1.75	2.00	2.25	3.00	4.00

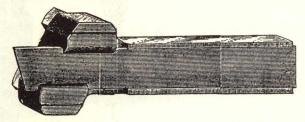
BEACH'S IMPROVED PATENT THREAD-CUTTING AND DIAMOND-POINT LATHE TOOL.



These tools have now been in constant use for the past three years. Many of them are in the hands of our best mechanics, and have been pronounced to be all that could be desired for Thread-Cutting and for Turning. The cutters are made from the best steel, carefully tempered; are exact to United States Standard Gauge, viz: 60 degrees. One of these cutters will do more than six times the work of any forged tool, and, when used up, can be replaced for 25 cents, which is not more than the cost of one dressing by the black-smith. No time spent in forging, and very little in grinding. As a matter of economy only, no one who uses an engine lathe can afford to be without one of these tools.

	in.	f Holder. in.	in.	of Cutter.	Price.	Duplicate Cutters,
No. 2 Tool, with two Cutters, fine or V adjustment,)	$y \frac{1}{3} \frac{7}{2} by$		13; in.	\$2.50	25 cts
No. 3 Tool, with two Cutters, fine or V adjustment.	} 11 b	$y \frac{1}{3} \frac{7}{2} by$	57	1 in.	3.00	35 "

SLATE'S CUTTING-OFF TOOL.



The advantages of this tool are: The cutters are made from the best hammered tool steel, and vary in thickness by one-hundredths, from 6-100 to 14-100, and are secured in a holder. The cutters can be worn up nearly the entire length. They are also less liable to break than ordinary cutting-off tools, inasmuch as they are hardened only on the upper or cutting edge. The under side of the holder is extended in such manner as to give support to the tool immediately under the cut.

Price of Holder, with one Blade - . - - - \$2.50.

Extra Blades, 25 to 50 cents each, according to thickness.



Drop-Forged from the Best Cast Steel

For cutting Depressions for screw and bolt heads in wood or metals. Are adapted to all classes of work, and are superior to all others.

Designed for all classes of mechanics using an ordinary Bit Brace.

Especially adapted to the wants of Machinists and Blacksmiths. Are used in turning lathes and drill presses.

Price each, 50 cents.

Either Round or Square Shank furnished.

BILLINGS' DROP-FORGED LATHE DOGS.

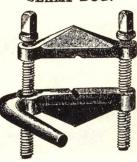
These Dogs are Forged from the Best Bar Iron and Steel for the purpose, and Warranted a First-Class Article.

PRICE LIST.

CLAMP DOG.

COMMON DOG.

DIE DOG.



No. 1, 18 in.	between	screws,	\$1	50
No. 2, 21 "	**	"	2	00
No. 3, 24 "	"	"	2	50
Per set of th	ree, -		5	50



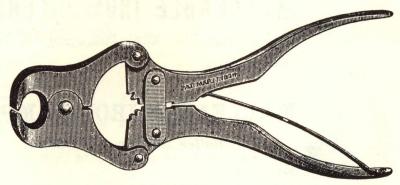
#	inch		. ?	5U	00	
1	66				60	
8 12 84	66				70	
1	44				80	
11	66				95	
11				1	10	
14	44			1	25	
2	"			1	40	
21	66			1	60	
$\frac{2\frac{1}{2}}{3}$	44			1	80	
31	"			2	00 30	
4	46	Ĩ	000	2	30	



But one size of this Tool is now made.
Other sizes will be, should the trade demand,
lk in het'n sizes. \$3.00

mand, 1 1 in. bet'n sizes, \$3.00 Extra Dies, 50 cents per pair.

KENNEDY'S CONCENTRATED POWER CUTTING NIPPERS.



SIZE 6 1-2 INCHES, WILL CUT 1-8 INCH WIRE, PRICE, \$1.75.

GUN AND MACHINE MAKERS' SCREW DRIVERS.

Drop-forged from best Cast Steel. With Rosewood Handles.



No. 1. 1-8 by 4 in., per doz., \$4.00; price each, 40 cents. No. 2. 1-4 by 4 in., per doz., \$4.00; price each, 40 cents. No. 3. 5-16 by 4 in., per doz., \$4.50; price each, 45 cents. No. 5. 1-2 by 6 in., per doz., \$6.00; price each, 60 cents.

DOUBLE ACTION RATCHET SCREW DRIVER.



ONE OF THE VERY BEST TOOLS EVER INVENTED.

It combines greater Strength, Convenience and Durability, than was ever obtained in a common Driver.

Made of the best Materials, in a First-Class manner-Ebonized Handles.

PRICE-4 Inch, 75 Cents; 5 Inch, 85 Cents; 6 Inch, \$1.00.



MALLEABLE IRON OILERS,

With Patent Eliptic Steel Spring.

Price per Dozen, - - - - - - 86.00.

MALLEABLE IRON LAMPS

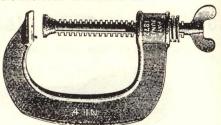
For Boiler Makers and Others.

Price per Dozen, - - - - - \$6.00.

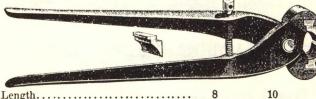
\$2.00

HAMMER'S ADJUSTABLE CLAMPS.

Inch.		Price Each.
3		
4		
5		
6		\$1.00
8		1.25
Price for	Set of 5	4.00



Carew's Patent Wire Cutter.



The Cutters to this tool are made so that they can be taken out and sharpened when dull, and it is a first-class tool for service.



A set of these useful tools, one size running into another, enables a 3-16 in. hole to be enlarged to a 4 in. if necessary. Each reamer leaves a true cut hole. Carriage makers will find them useful for hard wood as well as for iron work.

12 14 in. \$2.25 \$2.50 each.

PRICES.

1 ir												. 8	.45	
5-16	"												.50	
8 7-16													.55	
7-16	"												.60	
1	"												.70	
1 9-16	"												.80	
5	"												.90	
∯ 11-16	44												1.05	
4	"				-								1.20	
		-	_		_									

Full Set of Reamers, in Case, 9 Sizes, \$7.25.

Pipe Taps and Reamers.





Diameter, \$\frac{1}{8}\$ \$\frac{1}{4}\$ \$\frac{1}{8}\$ \$\frac{1}{4}\$ \$\frac{1}{8}\$ \$\frac{1}{4}\$ \$\frac{1}{8}\$ \$\frac{1}{4}\$ \$\frac{1}{8}\$ \$\frac{1}{4}\$ \$\frac{1}{8}\$ \$\frac

Pipe Stocks, with Loose Handles and Solid Dies.



No. 1.	complete	with	h ł.	1.	8,	1	inc	h	Dies and	Guides,)		-		•	\$10	
No. 12,	41	46	1.	8	1.	4	1 "		66	44	-	•		-		15	00
No. 2,	"	"	8	1.					66	66					-	11	00
No. 21,	66	"	8	1.	11.		6		46	66	-	-		-		14	00
No. 3,	. "	46	11,	14.	2.		6		66	46	and	Leader	Scr	ew		18	00
No. 4,	44	"	$2\frac{1}{2}$,	3,	~,		6		66	"		46	44		•	40	00

EITRA GUIDES.

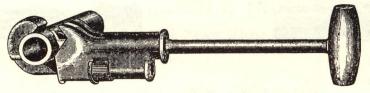
For	No.	1	Stock,					\$0	20	For	No.	21	Stock,		-		-		\$ 0	
46	46	11	Stock,	-			-	0	25	46	66	3	66	-		-		-	0	50
					-					66									1	00

SOLID PIPE DIES.



No. 1,	2 ir	iches sq	uare,	by	1	inch	thick,	1, 1	8, ½ 8, ½, ¼ 1, 1½,		-		-		\$1	
No. 14.	24	"	"	"	8	46	"	1, 1,	8, 1, 2	, 1,		-		-		50
No. 1½, No. 2 & 2½,	3	66	*66	66	8	66	"	1, 8	1, 11,		-		-			90
No. 3,	4	46	66	46	1	66	44	£, 1,	11, 11, 2,	-		-		-	4	30
No. 4,	5	"	"	"	11	"	46	21, 3,			-		-		12	00

The Acme Patent Pipe-Cutter.



Manufactured Entirely of Solid Cast-Steel.

FOR CUTTING OFF

WROUGHT-IRON, BRASS OR COPPER PIPES, ROD-IRON, &c.

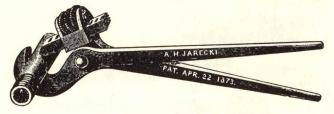
PRICE LIST.

No. 1	CUTTER,	cuts	‡ to 1‡ Pipe, inclusive
No. 2	"	66	4 to 2 " " 9 00
No. 3	44	"	2 Pipe to 4 Boiler Tubes

EXTRA KNIVES.

No. 130 cts	1	No. 2	1	No. 3\$1.00
T101 T11111111111100 000	- 1	110. 8		210. 01111111111111111

JARECKI'S ADJUSTABLE PIPE TONGS.



No. 0 grips	gas burne	er to \\ \frac{1}{2} \cdots \cdots \\ \frac{1}{3} \cdots \cdots \\ \frac{1}{3} \cdots \cdots \\ \frac{1}{3} \cdots \cdots \\ \frac{1}{3} \cdots \\ \frac{1} \cdots \\ \frac{1}{3} \cdots \\ \frac{1}{3} \cdots \\ \frac{1}{3} \cdots \\ \frac{1}{3	00	No. 3 grips 1	to 2½ to 3½	\$5 50
No. 1 "	66	to 1 3	50	No. 4 " #	to 3½	9 00
No. 2 "	46	to 1\frac{1}{2} 4	00	No. 5 " 21	to 6	16 00

It takes but a second to adjust them to any sized Pipe within their range, and when so adjusted they are a PERFECT TOOL.

The Steel Bar is reversible, so that either end may be used—one end having fine teeth, which adapts it for grasping Brass Pipe, Bolts and Studs, which are not crushed by its usc. A very useful Tool about an Engine, Lathe, Factory or Machine Shop.

"CRESCENT" FORGED STEEL PIPE TONGS.



Size, \$1.00	1	8	1/2	8	1	11	11	2	21	3
Price. \$1.00	1.10	1.20	1.30	1.50	1.75	2.00	2.25	3.00	4.00	4.25

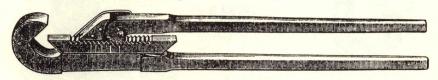
BROWN'S PATENT ADJUSTABLE PIPE TONGS.



No. 1 Size Pipe, 1 to 2 in. Price each, \$3.00 1½ \$ to 1 in. \$3.50 2 to 11 in. \$4.00

3 1 to 2 in. \$5.00 4 1½ to 3 inch. \$9.00

Barnes' Adjustable Pipe Tongs.



No	. 1. 1	to #	inch	Pipe	 	 \$3	00						
44	2. 1	to 1	"	"	 	 4	00						
46	3. 1	to 1	1 "	66	 	 4	50						
66	4 1	to 2	. "	66									

Stanwood's Patent Pipe Cutter.



Nos		2	3
Cuts Pipe from	to 2 in.	1 to 2 in.	2 to 3 inches.
Case Hardened	\$6.50	\$8.00	\$16.00
Steel Faced	8.00	10.00	20.00
Cutter Wheels		20	30
" Blocks and Wheels		75	1.25

GAS PLYERS.

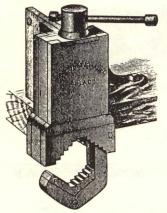
Size 8	9	10	12	13	14 inch.
Price per dozen\$9.00	\$10.50	\$12.00	\$13.50	\$15.75	18.00
" each 85	1.00	1.12	1.25	1.50	1.75

BURNER PLYERS.

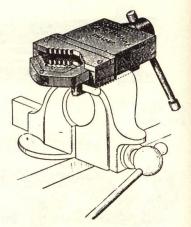
- 1	POLISHED.)	
٠,	I OHIBITED.	

Size	5	6	7
Price per dozen	\$5.50	\$6.00	\$6.75
" each		60	65

IMPROYED PIPE-FITTERS' YISE.

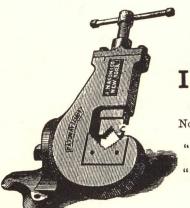


STRONG, LIGHT, EFFICIENT, CHEAP.



To meet the requirements of the large number of persons who have use for such an article, we invite attention to our Improved Pipe Vise. This vise can be used either as a permanent fixture to work-bench, attached to angle-plate or can (unlike others) be held between the jaws of any Machinist's or Blacksmith's vise; the movable jaw being OPEN ON SIDE, permits work to be gripped at any desired point, without slipping it in from end, and allows of Fittings being Held securely; the Box is made of Malleable Iron, the Screws of Wrought Iron, and the remainder of Solid Steel throughout. The Steel Gripping Jaws can be duplicated and replaced at any time when worn out. It is a very convenient tool, well adapted to the wants of Plumbers, Pump Fitters, Well Drivers, and all who have use for a tool that is strong, light, efficient and cheap, which can be readily carried about with kit of tools.

Price complete with Angle-plate. - - . . \$8.00.



THE NASON

IMPROVED PIPE VISE

No. 1, to hold Pipe from \(\frac{1}{2}\) in. Diam....\\$15.00

· 2, " " † to 2 " 18.00

" 3, " " 1 to 3 " 30.00

HORSE SHOER'S MACHINE.



A Vise and Steel Dies Expressly for Welding and Swaging Toe and Heel Calks.

The shoes being gripped by placing the foot on the treadle, and the vise falling open when the foot is taken off, work is dispatched in the most finished style, in half the usual time, the anvil is saved, the hammer is saved, and no help is needed.

The dies in the jaws of the vise, so shaped as to give the right form to the calks as they are hammered, may be readily detached from the machine to be changed. They are so tempered as not to hurt the hammer.

The anvil attachment in front may be used in trueing up the shoe, it also carries the steel die, with four different sized slots, for welding on calks.

The machine is entirely of steel and iron; it can be set anywhere. Will be found solid, simple and durable—a valuable labor-saving machine.

Price, - - \$25.00.

GREEN RIVER TIRE BENDER.

For Light and Medium Work.

This machine will bend accurately and easily tires from the lightest to § inch thick. The circle to be made is fixed by means of a right and left hand screw, operated by the hand wheel, acting equally upon the two lower rollers.

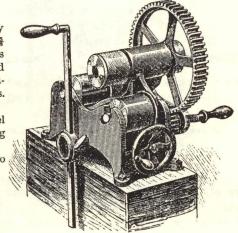
The rollers are three inches wide.

The upper roller is faced with steel and milled to insure the regular feeding through of the work.

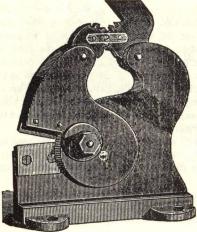
It is powerfully geared, and two cranks may be used if desired.

Weight 140 lbs.

Price. - . \$25.00.



KENNEDY'S PATENT CONCENTRATED POWER SHEARING AND PUNCHING MACHINES.



No. 3 Bar Shear.

No. 1—BAR SHEAR. Cuts & inch by 1½ inch Bar Iron, and & inch Round Rod.

Price, - - - \$10.00

No. 2—BAR SHEAR. Cuts 1 inch by 2 inch Bar Iron, and 1 inch Round Rod.

Price, - - - \$20.00

No. 3—BAR SHEAR. Cuts # inch by 4 inch Bar Iron, and # inch Round Rod. Weight 140 pounds.

Price, - - - 860.00

No. 4—PLATE SHEAR. Cuts & inch Sheet Metal, any width.

Price, - - - \$30.00

No. 5—PLATE SHEAR. Cuts 1 inch Sheet Metal, any width, and 1 inch Round Rod. Weight 140 pounds.

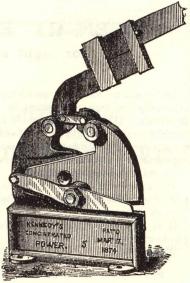
Price. - - - 860.00

No. 6—PLATE SHEAR. Cuts # inch Sheet Metal, any width, and # inch Round Rod. Weight about 400 pounds.

Price. - - - - \$110.00

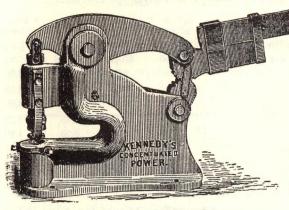
All of the above levers are reversible.

The working parts of these Machines are all of Wrought Steel and Mill cut gearing.



Nos. 4, 5 and 6 Plate Shears.

PUNCHING MACHINE.



No. 2 1-2 and 3 Panch.

No. 2 Puncii.—Punches 5-16 and smaller holes in $\frac{1}{2}$ inch iron, $2\frac{1}{2}$ inches from edge.

Price - - 825.00

These Machines are easily worked by footpower.

No. 2½ PUNCH. — Punches 5-16 and smaller holes in ½ inch Iron 4½ inches from the edge to center of hole. Weight 110 pounds.

Price - - \$50,00

These Machines are provided with extra large space for dies, for stamping thin metal.

No. 3 Punch.—Punches ½ inch and smaller holes in 5-16 inch Iron, 6 inches from edge to center of hole. Weight 195 pounds.

Price - - \$75.00

CONCENTRATED POWER "SCREW PUNCH."

This is the most perfect Tool for the purpose ever offered, any of the sizes being easily worked with only one man at the Lever.

No. 1—Punches § inch hole in § inch Iron 2½ inches from edge to center of hole. Weight, 50 pounds. Steel Castings.

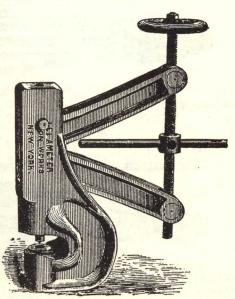
Price 870.00

No. 2—Punches \(\frac{1}{2} \) inch hole in \(\frac{1}{2} \) inch lron 3 inches from edge to center of hole. Weight, 100 pounds. Steel Castings.

Price - - . . . \$100.00

No. 3 (RAILROAD PUNCH).—Punches 1½ inch hole in neck of Railroad Bar, for Fish Plates; and any other Heavy Punching.

Price - - - - \$175,00



Concentrated Power "Screw Punch."

WESTON'S DIFFERENTIAL PULLEY BLOCKS.

And Extra Parts for same.



Names. Block, Complete	¼ Ton. 822.50	1/2 Ton. 25.00	1 Ton. 30.00	1½ Ton. 40.00	2 Ton. 50.00
Chain in each Block.	26 feet.	26 feet.	30 feet.	34 feet.	38 feet.
Extra length, per foot	. \$0.40	\$0.40	\$0.44	\$0.48	\$0.52
Top.		2.50	3.00	4.50	6.50
Sheave, Top. Bottom.		1.25	1.50	1.75	2.50
Voke and) Top.		4.00	4.75	6.00	8.00
Yoke and Hook. Bottom.		3,25	3.75	4.75	6.00
		.85	1.00	1.20	1.50
Pin. Top. Bottom		.60	.80	1.00	1.25
The state of the s			~ .	AWO 00	

3 Ton Block, Complete, 38 foot Chain, \$70.60.

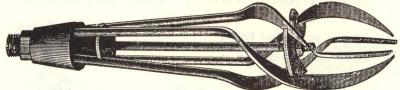
BLOCKS WITH SPROCKET WHEEL.

2 Ton. 3 Ton. 4 Ton. 5 Ton. 6 Ton. 8 Ton. 10 Ton

Prices Complete. \$75,00 100 140 200 300 400 500

Chain in each. 30 ft. 30 ft. 50 ft. 50 ft. 50 ft. 50 ft.

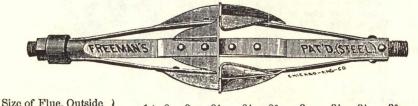
THE JACKSON FLUE SCRAPER.



PRICE LIST.

11/2	inch	\$1.50	21	inch	2.50 2.75 3.00	31	inch	\$3.25	41	inch	4.50
14	66	1.75	24	"	2.75	31	"	3.50	5	"	5.00
2	"	2.00	3	"	3.00	34	"	3.75	6	"	6.00
21	"	2.25				4	66	4.00			

Freeman's Improved Steel Scraper.



Price,	\$2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	
No. of Scraper		8	9	10	11	12	13	14	15	16	
Diameter, inches	1 to 2	2	21	$2\frac{1}{2}$	24	3	31	31/2	34	4	

PRICE LIST OF

UNION SOLID EMERY OR CORUNDUM WHEELS.

Adopted January 1st, 1880.

Be sure and give grade.

48	42	36	30	. 26	24	22	20	18	16	1#	12	101/2	91/2	0 81/2	00	71/2	6	Or.	4	31/2	33	21/2	2	11/2	DIAME- TEE. In inches.
.									:	6 20	4 00	3 85	3 50	2 80	2 60	2 45	1 75	1 40	1 10	95	80	65	50	\$0 40	20
			:		:			13 75	11 00	8 70	6 00	5 50	4 50	3 85	3 60	3 50	2 40	1 80	1 35	1 15	95	75	55	\$0 45	e2 4s
	:			:		•	20 00	17 00	13 70	10 70	7 50	6 50	6 00	4 90	4 60	4 20	3 00	2 25	1 60	1 35	1 10	85	60	\$0 50	<u></u>
				:		29 50	25 00	21 75	17 00	13 25	9 00	8 50	7 60	6 00	5 70	5 25	3 70	2 60	1 85	1 55	1 25	95	65	\$0 55	11
		95 00	66 00	49 00	43 00	35 50	29 00	24 50	19 40	15 20	10 70	9 80	8 75	7 00	6 40	6 00	4 35	3 00	2 10	1 75	1 40	1 00	70	\$0 60	21
		110 00	77 50	58 00	50 00	41 00	34 00	28 75	22 00	17 80	12 75	11 25	10 00	8 25	7 60	6 95	5 00	3 40	2 40	2 00	1 55	1 15	75	\$0 65	<u>-</u> 4 ₩
185 00	160 00	125 00	87 50	65 00	57 00	46 75	38 00	32 00	25 00	19 50	14 00	12 50	11 25	9 00	8 30	7 75	5 00	3 80	2 60	2 15	1 70	1 25	80	\$0 70	13
220 00	190 00	156 00	109 00	82 00	71 00	58 00	47 00	39 50	30 80	21 20	17 40	15 75	14 00	11 50	10 50	9 60	6 80	4 60	3 25	2 50	2 00	1 50	90	\$0 80	21
265 00	225 00	188 00	131 00	98 00	85 00	69 25	56 00	47 00	36 50	27 50	20 75	19 00	16 80	13 50	12 60	11 50	8 10	5 40	3 60	3 00	2 30	1 70	1 00	\$0 90	ယ
300 00	260 00	219 00	153 CO	114 00	99 00	80 50	66 00	54 50	43 00	30 00	21 25	23 00	19 60	16 00	14 00	13 50	9 50	6 20	4 00	3 40	2 60	1 85	1 10	\$1 00	ပ္တ
360 00	300 00	250 00	175 00	130 00	113 00	92 00	75 00	62 00	48 75	35 00	27 50	25 00	22 50	18 00	16 00	13 50	10 50	7 00	4 50	3 75	2 90	2 00	1 20	\$1 10	44
48	42	36	30	26	24	22	20	18	16	14	12	10%	91/6	81/2	00	71%	6	01	1 4	81.6 %,	ೞ	51.6	ıc	11/2	DIAME- TER. In inches.
290	320	400	500	550	600	675	750	825	900	1,050	1,200	1,500	1,575	1,700	1,800	2,000	2,400	3,000	3,600	4,100	4,800	6,000	7,000	10,000	No. of Revolutions por Minute.

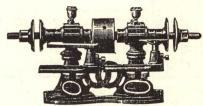
EMERY WHEEL MACHINES.

FOR GRINDING AND POLISHING.



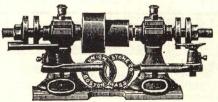
No. 000 has ½ inch arbor, and takes wheels to 6 inches in diameter.

Price, \$8.00.



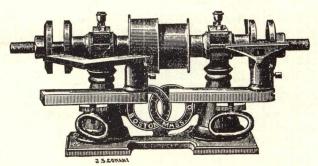
No. 0 has ‡ inch arbor, and takes wheels to 12 inches in diameter.

Price, \$18.00. Countershaft, \$10.00.



No. 1 has 1 inch arbor, and takes wheels to 14 inches in diameter.

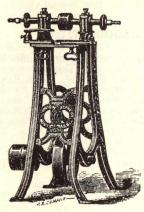
Price, \$25.00. Countershaft, \$12.00.



No. 2 has 1; inch arbor, and takes wheels to 16 inches in diameter.

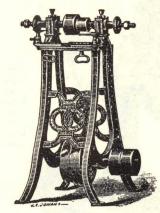
Price, \$45.00. Countershaft, \$15.00.

Emery Wheel Machines.



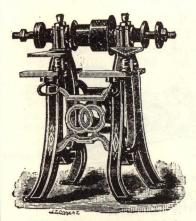
A has steel arbor for wheels with 2 inch hole.

Price, with countershaft, \$40.00.



B has 1 inch steel arbor, and takes wheels 12 to 14 inches in diameter.

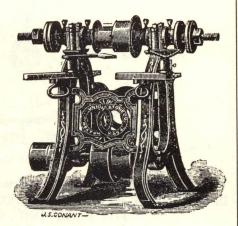
Price, with countershaft, \$50.00.



C has steel arbor for 1½ inch hole, and takes wheels to 16 inches in diameter.

Price, with countershaft, \$75.

Countershafts will be put either in the machines as shown, or in hangers as ordered, at the price named in each.



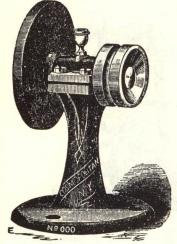
D has $1\frac{1}{4}$ inch steel arbor, and takes wheels to 20 inches in diameter.

Price, with countershaft, \$100.

E and F are not shown here, but are of the same general style.

E has a 2 inch steel arbor. Price, \$125. F has a $2\frac{1}{4}$ inch steel arbor. Price, \$150.

No. 000 COSMOPOLITAN EMERY GRINDER.



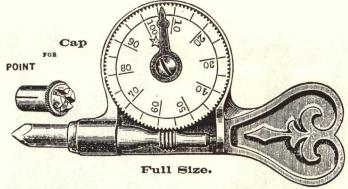
DESCRIPTION.

No. 000 Cosmopolitan Emery Grinder has steel Arbor for wheels with hole. This machine runs one wheel up to 6 inches diameter, 1 inch face has no Rests. Is a very desirable machine for Jewelers, Dentists, Engravers, Model Makers, &c., &c. One of these machines should set near every drill lathe, for grinding Twist Drills, Reamers, Taps, Dies, &c., &c. It can be run by either round or flat belts. The only machine of its kind in the market.

Price, - - \$5.00.

Prices do not include Emery Wheels.

IMPROVED SPEED INDICATOR.



Price per doz., \$17.00. Single one sent by mail for \$1.50.

IS ACCURATE, RELIABLE, OF CONVENIENT SIZE, AND SUITED FOR CARRYING IN THE POCKET.

For STYLE, FINISH and DURABILITY it is without a rival, while the PRICE is within the reach of ALL.

To ascertain the number of revolutions of any shaft in a given time, place the point of the Indicator in the center of the shaft, or on the point, and for every hundred revolutions the dial will revolve once; less than one hundred will be indicated by the pointer, which is to be placed at 100 before starting.

Diamond Tools for Trueing Emery Wheels. Small Size, \$8.00, Large Size, \$14.00.

MATERIALS FOR POLISHING, GRINDING, ETC.

For the use of Mechanics and Amateurs, we put up the following materials in small Tin Cans, neatly labeled, with the name of the article, and we think they will be found a great convenience. The Cans are of uniform size, 3% inches high and 2% inches in diameter.

EMERY, all numbers, and Flour	Price p	er can	, 20 (cents.
CROCUS	. "	66	50	44
ROTTEN STONE, in Powder	. "	"	20	66
PUMICE STONE, in Powder		44	20	"
ARKANSAS OIL STONE POWDER	. "	"	50	46
BORAX, for Welding	. "	"	25	44
PULVERIZED GLUE	. "	46	25	44
SHELLAC	. "	66	25	44
PRUSS, OF POTASH, for Case-hardening	. "	"	50	44
ROSIN	. "	66	20	44

IN BOTTLES.

VIENNA LIME, for putting a high polish on steel35	cents.		
FINE MACHINE OIL20			
LACQUER, for finished Brass Work35	cents,	4 oz. 60	cents.
SOLDERING FLUID20	66		

Emery Cloth, \$1.25 per Quire. Emery Paper, 60 cents per Quire. French Emery Paper, very fine, 75 cents per Quire. Sand Paper, 30 cents per Quire. Emery Sticks, for brightening work when hardening, 10 cents each.

ARKANSAS OIL STONES AND SLIPS.

ARKANSAS OIL STONES, various sizes, from 1 lb. to 2 lbs., \$2.25 per lb.

WASHITA OIL STONES, about 11 lbs. each, 50 cents per lb.

SQUARE ARKANSAS SLIPS, 40 to 60 cents each.

KNIFE EDGE SLIPS, 50 cents each.

TRIANGULAR SLIPS, 50 cents each.

PENCIL POINTS, 38 cents each.

ROUND EDGE SLIPS, 50 to 75 cents each.

SCOTCH HONE; or, Water of Ayr Stone, for polishing, in square pieces about 6 inches long.

Size...... ½ in. § in. ¾ in. 1 in. square.

Price each... 20 cts. 25 cts. 30 cts. 35 cts.

GLUE POTS.

GLUE POTS, complete, with lamp to burn Kerosene, \$2.00 each.

IRON GLUE POTS, tinned inside, size.... 4 inches. 5 inches. 6 inches.

Price... 62 cts. 75 cts. 92 cts. each.

GLUE BRUSHES, with Iron Handles; small, 40 cents; large, 50 cents, each.

STRONG GLUE, for Emery Wheels, etc., price per lb., 25 cents.

FROZEN GLUE, price 30 cents per lb.

SMALL TIN GLUE POTS, complete, with Brush and Glue, 35 cents each.

WASHER CUTTERS, for cutting Leather Washers, \$1.50 each.

Sand Crucibles.

SizeSmall 5s.	Large 5s.	6s.	8s.
Per doz. Nests 65 cts.	\$1.25	\$2.75	\$4.50
Per single Nest 10 cts.	.15	.30	.45

Black Lead Crucibles.

Number 2.	4.	6.	8.	10.	12.	15.	20.	25.	30.	40.	50.
Height 41	5	6	$6\frac{1}{2}$	71	8	81	91	10	11	12	13 in.
Dia. at Top3	4	41	5	51	6	61	61	7	8	81	91
Price each 30	.33	.37	.42	.50	.60	.75	\$1.00	\$1.25	\$1.50	\$2.00	\$2.50

Steel Letters and Figures.

(FOR STAMPING METAL.)

Figures in Sets, 0 to 9.	Size1-16.	1-12.	1-8.	3-16.	1-4.	5-16 inch.
	Price\$1.50	\$1.50	\$1.50	\$2.25	\$3.00	\$ 3.75
Alphabets, price	4.50	4.50	4.50	6.75	9.00	11.25

Steel Name Stamps.

(FOR STAMPING TOOLS, ETC., MADE TO ORDER.)

For Letters not over 1-8 inch, 20 cents; 3-16 inch, 30 cents; 1-4 inch, 40 cents per letter.

Iron Letters and Figures.

(FOR STAMPING WOOD.)

Size 1-8.	3-16.	1-4.	5.16.	3-8.	1-2.	5-8.	3-4.	7-8.	1 inch.
Figures, set75	.85	\$1.00	\$1.25	\$1.50	\$2.00	\$2.75	\$3.50	\$4.00	\$4.50
Alphabets 2.25	2.50	3.00	3.75	4.50	6.00	8.25	10.50	12.00	13.50

Pattern Letters and Figures.

(WHITE METAL.)

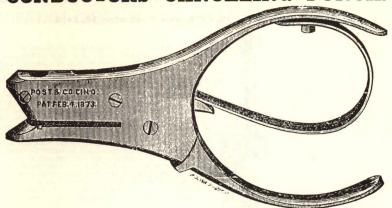
Size.... 1-8. 3-16. 1-4. 5-16. 3-8. 7-16. 1-2. 5-8. 3-4. 1. 1 1-4. 1 1-2. 2 inch. Price... .03 .03 .03 .03 .04 .04 .04 .05 .05 .06 .08 .10 11 each.

Branding Letters and Figures.

(WHITE METAL.)

Size	1.4.	3-8.	1.2.	5-8.	3-4 inch.
Price	.04	.04	.05	.05	.06 each.

CONDUCTORS' CANCELING PUNCH.



Best Punch in use for any ticket, including Thousand Mile, Commutation, Duplex, or Similar Forms.

Price, \$30.00 per dozen, or \$3.00 each.

Double Dies Extra. Engraving name in Old English, 50 cents each.

ALL PUNCHES ELEGANTLY NICKEL-PLATED.

THE "BOSS" CONDUCTORS' LANTERN.



Patented April 20th, 1875.

With Removable Globe,

And Outside, Wick Adjusting Device.

Price of "Boss" Lantern.

ENGRAVING, EXTRA.

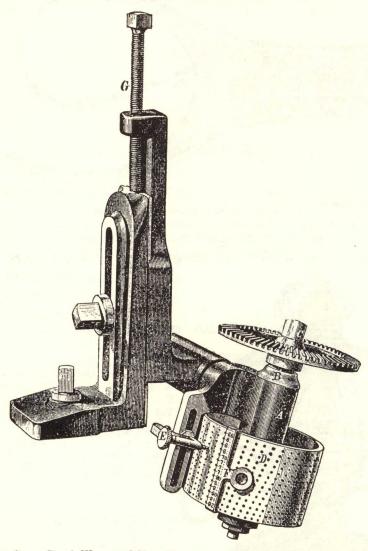
For Engraving Name in German Text, Old English, or Roman.... 75 Other Lettering, per doz. letters....\$1 00 Wreaths, Monograms, Emblems, Designs, Landscapes, Humorous Sketches, and in fact anything engraved on Globe at prices ranging from 75 cts. to \$20.00.

LANTERNS.

Brass Pet Lanterneach, \$ 500
" Gem " " 550
" Queen " " 6 00
Nickel Pet Lanterns 700
" Gem " 750
" Queen " 800
Brass Lanternsper dozen, 24 00
Tin " Single Gd " 10 00
" Double " " 11 50
Red. Blue and Green Globes, 75 cts. to \$1 each.

HOPKINS' GEAR CUTTING ATTACHMENT FOR LATHES.

Patented September 30, 1873, and November 10, 1874.



Cuts Spurs, Bevel, Worm and Skew Gears

Price, \$50.00 each.

See opposite page for description.

DESCRIPTION OF

HOPKINS' GEAR CUTTING ATTACHMENT FOR LATHES.

Those mechanics accustomed to using the lathe will quickly understand the nature of the attachment to that tool, which the annexed engraving represents, the object of which is to cut all kinds of gears. It can be used on 15, 18 and 20 inch Swing Lathes, or on a slabber.

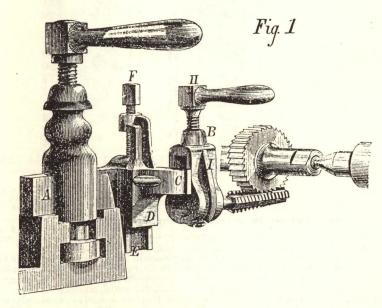
The work is operated upon by a cutter turning upon the centers of the lathes.

A is the arbor box, in which freely turns a hollow spindle, B. Through the latter passes a tapered arbor, C, on the upper and larger extremity of which the gear wheel to be cut is secured. Fastened to the hollow spindle by means of a set screw, and hence rotating with it, is the index pulley, D. Attached to the arbor box is an arm in which is a slot, in which travels an index point, E, connected with a suitable spring, which holds its extremity in one of the orifices on the pulley, D, to which it may be adjusted. Rows of different numbers of these apertures around the pulley, D, provide various graduations; and from the pointer, E, travelling freely along its slot, it may be readily placed over any desired row. The number of holes in each row is marked upon the face of the side clasp, F, directly over each series of apertures. The clasps slide entirely around the circumference of the index pulley, and can be used to mark the number of holes passed under the index point, serving the purpose of the spacing fork on common gear-cutting machines.

Any graduation under 100, and all even numbers up to 130 can be cut. All these graduations are actually here, no complicated, intricate arrangement to perplex and bother. The construction of the device is of the most careful description, well calculated to ensure durability and efficiency. It will be noticed that when using this apparatus the action of the cutter upon the work can be conveniently and carefully observed as it progresses, without stopping.

be conveniently and carefully observed as it progresses, without stopping.

HOPKINS' IMPROVED WORK HOLDER FOR LATHES.



The device is adapted to fluting taps, slabbing studs, nicking screws, and other similar work, in great variety. The entire tool consists of SIX pieces in all: one bar, three jaws, one band and a wrench, and is capable of holding round, flat, square, half-round and three-cornered articles from 3-16 to 1 inch in diameter and of any length.

> Price each. 85.00.

JONES & LAUGHLIN'S

PATENT COLD ROLLED SHAFTING, PISTON RODS. &c.

In all the requirements of Shafting—uniform accuracy of size, finish, stiffness, torsional strength, etc.—our Cold Rolled excels, in an eminent degree, any other Shafting in use. Each shaft is made to fit Whitworth's celebrated Manchester Gauge Rings.

Diameter	Price per lb.	Weight per Foot.	Diameter.	Priceiper lb.	Weight per Foot.
41	101	53.76	15		6.91
4)	41.88	1,592	Marine .	6.60
$3\frac{3}{4}$		36.81	1 1 6	11	6.40
$3\frac{1}{2}$		32.07	11	711	5.89
31		27.65	1 1 0 0 0	Mark and and	5.52
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23		19.79	11		4.09
211	} 10	18.80	130	j	3.70
25		18.03	11	101	3.31
$2\frac{1}{2}$		16.36	170	121	2.96
276		15.55	1	- an sed	2.61
23		14.76	15	1	2.48
21		13.25	4 (21-15 0 013		2.30
276		12.54	7	} 15	2.00
21		11.82	13		1.74
2 i 2		10.47	34		1.47
115)	9.83	11	1	1.24
178		9.20	15	} 16	1.02
113	101	8.60			.837
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One Cent per lb. extra for Pump and Piston Rods,

The Shafts are kept on hand in lengths of 20 feet (excepting 4½ inch, which we do not make longer than 12 feet), and are cut to any length desired.

KEY-SEATING.—For many purposes, long Key-Seats in Shafts are required. We have key-seated many thousands of our Cold Rolled Shafts their entire length, and in no instance have they failed to show their superiority over Turned Shafts Key-Seated. Our charge for doing this work is moderate, and in all cases we guarantee entire satisfaction.

Our Cold Rolled Shafting possesses these Practical Advantages:—It has 75 per cent, more effective strength than same size of turned iron. It is more nearly perfect in size and finish than Shafting made by any other process. By its use an average saving of 35 per cent, in weight and cost of Shafting, Hangers and Couplings, is secured.

The power which must be expended to overcome the friction of Cold Rolled Shafting

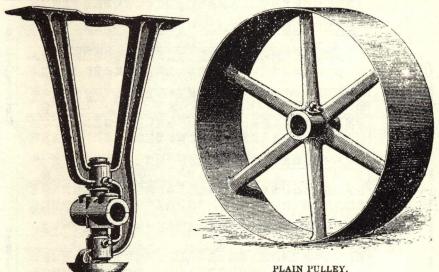
The power which must be expended to overcome the friction of Cold Rolled Shafting is less, by 30 per cent., than is required to overcome the friction of Turned Iron Shafting of equal strength. A fact which in large Mills deserves recognition.

In EVERY respect it is superior to Turned Shafting.

Improved Self-Adjusting Hangers.

These Hangers are exceedingly simple in construction, the bearings are lined with the best Babbit Metal, are self-adjusting, and not liable to heat.

Note.—We are often asked for our opinion concerning Self-Oiling Bearings. We would say that we have tested many different styles at our works, and the results have been so unsatisfactory that we cannot recommend them. Unless a uniform temperature of atmosphere is secured, and a uniformly good quality of oil obtained, they will fail to work successfully. The most reliable and economical oiler is a careful and attentive man.



DROP HANGER.

PLAIN PULLEI.

(See next page.

S	ELF-AI	DJUSTIN	GERS.	POST HANGERS.						
			DROP	HANGI	ERS.			1	e,	From
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JACKSON & TYLER,

SOLE AGENTS FOR

Baxter Steam Engines,

2, 4, 8, 8, 10 Horse Powers.

DIAMOND ENGINE.

2 Horse Power

Engines and Boilers Furnished of any Make, and Prices and Estimates Given on Application.

IRON WORKING TOOLS

Lathes, Planers and Drill Presses, Shapers, Gear Cutters, Etc.

WOOD WORKING MACHINERY,

FOR PLANING AND MATCHING, MOLDING, SAWING, ETC. BAND SAWS AND BAND SAW BLADES A SPECIALTY.

SOLE AGENTS FOR

RICHARDSON & BROS.

Improved Process, Patent Temper, Patent Ground

CIRCULAR SAWS.

send for Prices on any of the above.

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